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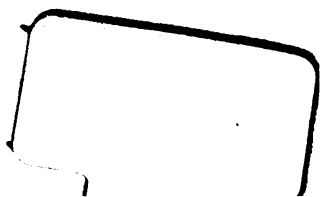
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LIFE AND WRITINGS

OF

EBENEZER PORTER MASON;

INTERSPERSED WITH

HINTS TO PARENTS AND INSTRUCTORS

ON THE

TRAINING AND EDUCATION

OF A

CHILD OF GENIUS.

BY DENISON OLMSTED,

PROFESSOR OF NATURAL PHILOSOPHY AND ASTRONOMY IN YALE COLLEGE.

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PREFACE.

It appears to have been the practice of British writers much more than of our own, to give extended biographies of their youth who, in the morning of life, exhibited extraordinary talents, and gave promise of the highest excellence, but sunk prematurely into the grave. They have thus not only paid a suitable homage to genius, but have secured to their country the honor of which a nation may well be emulous,—that of giving birth to the fairest specimens of the race. They have in this way rescued from oblivion, and placed on the records of fame, their “Admirable” Crichtons, their Henry Kirke Whites, their James Hay Beatties, and their Thomas Spencers.

The writer of the present memoir has been constantly influenced by the feeling, that a similar tribute to the extraordinary youth whom it commemorates, was due alike to his own memory, to the place of his education, and to his country. To one who does not sympathize with this feeling, some of the letters inserted may possibly appear too little remarkable to merit publication; but he will find, on closer scrutiny, that each passage serves some valuable end, in exhibiting the development of intellect, the lofty aim, the kind af-

fections, the filial piety, or the struggles with sickness and penury, which marked the progress of our young friend from the cradle to the grave. The same reason, it is hoped, will be deemed a sufficient apology for exposing to public view (with the consent of the relatives) matters of family history, which otherwise would have been held too sacred for any eye but that of friendship or kindred.

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LIFE, ETC.

CHAPTER I.

FROM HIS BIRTH UNTIL HE WAS THIRTEEN YEARS OLD.

Introductory observations—Birth and parentage—Extraordinary developments of his infancy and childhood—Early passion for books and philosophical experiments—Rapid progress in knowledge—Residence at Nantucket—Incident that awakened his zeal for astronomy—Farewell to Nantucket.

THE young astronomer whose interesting but transient life I propose to commemorate, adds another mournful example to the catalogue, already too numerous, of those who have died in early youth, consumed by the fires of their own genius. Like Henry Kirke White and John Urquart, he possessed a physical frame of the most delicate mould, which proved unable to sustain the constant and intense action of a mind burning with enthusiasm, and stimulated by the loftiest aspirations. It is melancholy to reflect, that the exquisite mechanism of such a system, is at once the concomitant of superior minds, and the harbinger of an early tomb.

I acknowledge that I regarded young Mason, while living, with a fondness and admiration which may seem too great for the impartial biographer; and the perusal of his letters and various writings since his de-

cease, has added strength to these emotions; but should the picture which these alone present to my own mind of a character eminently beautiful, formed as it was of a union, in the finest proportions, of intellect, imagination, and genius, with the greatest delicacy of feeling and sweetness of temper,—should the picture gradually unfold itself before the mind of the reader as it has to my own, I feel assured that he will share with me both my love and admiration.

The numerous friends of young Mason, both the associates of his early years and his cotemporaries in college, retain so strong an interest in him, and cherish so high an admiration of his genius, that they call for a full recital of his history. They desire to know what were the first dawnings of his mind—what presages his infant developments afforded of great talents—and especially, by what steps he was led to acquire, so rapidly, the rare but exalted powers which unite to form the great astronomer. Nor will an analysis of his intellectual powers, or an exposition of the methods by which they were developed, alone satisfy their wishes. Their admiration is exceeded by their affection for his memory, and they are inquisitive to know all that related to his personal welfare, and all that indicated the attributes of the heart as well as the endowments of the mind.

The papers furnished me by his friends, added to my own intimate acquaintance with him at the most interesting period of his life, supply ample documents for such a biography. I have before me the following materials. First, a letter from his Rev. father, giving an account of his infancy and childhood; secondly, a longer narrative of his early years, furnished by his

aunt, Mrs. Harriet B. Turner, who, on the decease of his mother, which happened when he^s was only five years old, assumed, and ever after sustained, a relation to him truly maternal; thirdly, the reminiscences of Mr. G. H. Hollister, who was his intimate friend and confidant from early life; fourthly, a full recital from Mr. Hamilton L. Smith, his chief astronomical assistant and coadjutor; and finally, a large portion of his correspondence, and nearly all the productions of his pen.

It will be a leading object of this Memoir, to delineate the proper course to be pursued in the management and education, physical and mental, of a child of extraordinary genius; where, as is often the case, the union of a mind of intense activity with a heart of extreme sensibility, and a physical constitution of the frailest texture, calls for the most skilful training, or else the bud withers and dies before its blossoms are fully expanded.

EBENEZER PORTER MASON was born at Washington, a retired village in Litchfield county, Connecticut, December 7th, 1819. His father, Rev. Stephen Mason, was pastor of the Congregational church in that town. No part of New England is more distinguished than this for its romantic scenery and rural quiet, and for the stern virtues and primitive manners of its inhabitants. A wild and broken country, diversified by high hills and deep valleys, by cultivated farms scattered among dark forests, and abounding with clear streams and bright waterfalls, with "rural sights and rural sounds," was that which gave him his first impressions of nature. Although he removed from this place at an early age, yet its peculiar features left their impress on his mind, and had no small influence in forming his

taste. We shall see hereafter with what delight and enthusiasm he revisited these scenes of his childhood.

I have recently been favored with a communication from the Rev. Mr. Mason, (who now resides at Marshall, in the state of Michigan,) giving a few particulars of the earliest indications of his son's turn of mind, in which it is interesting to discern traces of those extraordinary *powers of observation*, which afterwards constituted so distinguished an attribute of his genius. "In the early periods of his infancy, (says his father,) he showed a remarkable propensity to inspect, with great closeness and minuteness of observation, whatever things were presented to him, or came in any way to his hands, especially such things as were constructed with mechanical ingenuity and skill. I have seen him, while a little creeper on the carpet, before he could walk, amusing himself with an examination of colors, textures, and configurations, and seemingly to find exquisite delight in the graceful coils of a hair, and in the variety of changes which his little fingers could effect in its appearance. He was evidently delighted with such delineations as were true to nature, such as pictures of men, children, and animals; and when the pencil was given him for amusement, he very soon exhibited a passion for drawing."

His mother also, in a letter now before me addressed to her sister, thus describes the rapid development of his infant faculties. "Porter is now two years old. He tries to repeat every thing he hears, and with much success. Books are his chief amusement. His playthings are an old prayer-book and some picture-books, and he is constantly importuning me to tell him the names of this and that letter of the alphabet, and in

this way, he has learned many of his letters." He would not rest until he had obtained a full explanation of all the cuts in his picture-books, and he would begin at the first and rehearse with accuracy the various particulars respecting each in order, until he had completed the whole. "Whatever he does (says his mother) *is done well*,"—a trait which was most distinctly exhibited through life. Again his mother writes: "Porter is now three years old, and is as fond of his book as ever. If we were attentive in instructing him, he would make great progress; but we do not desire his rapid advancement,"—a judicious precaution where great precocity appears in early childhood, especially when it is connected, as is often the case, with a frail and feeble bodily constitution.

"He had but just passed the third year of his age, when he lost his excellent mother, who had already made a successful beginning in the discipline of his mind and heart. At that age he showed great conscientiousness, love for truth, aversion to whatever he considered wrong, and a firm adherence to whatever he thought right, even when pressed with temptation to the contrary course. Prior to his mother's death, he always seemed most happy when sitting at her feet receiving instruction directly from her lips, or in some other mode which she had devised for his entertainment. The letters of the alphabet formed distinctly with her pen, both in large and small characters, were given him as playthings, and he was required to select and hand to her the particular letter she called for. In this way of delightful pastime to himself, he became, in a very short time, perfectly well acquainted with every letter, in every position in which it could be pre-

sented to his eye, and very soon learned to form combinations of letters into short words. About this time, a little book containing simple words and sentences, with pictorial representations of various animals and things, instead of their names, was procured, which took the place of his alphabetical cards, and was no less amusing to him. In a few days he could spell every word, and read every sentence of his little book, with great ease and accuracy. Thus he proceeded from reading one little volume to another that came (under parental supervision) to his hand, until he could read the Bible, with remarkable fluency and propriety, before he had ever seen a common spelling-book, and before he had reached the age of four years. It was the aim of his parents to instruct him in such things only as he was capable of understanding clearly, and they permitted him to advance no further in any study than was compatible with a thorough understanding of it, and no other mode of study was ever satisfactory to himself."

I have thought the foregoing particulars respecting the early training to which the mind of this child was subjected, worthy of being recited, not only as evincing the precocity of his intellectual powers, but as affording judicious hints to parents for the culture of the infant mind. Seldom do parents, when they discover in the first dawnings of the mind of a child rays of extraordinary brightness, wait so patiently for the day to unfold.

Young Mason early imbibed a fondness for the pen. His aunt speaks of a letter received from him when he was only five years old ; but the earliest of his letters in my possession was written when he was seven. The

language is that of a child, and I venture to copy it here, not so much as evincing extraordinary powers of mind, as for the traces it affords of the taste of the writer at this age, and of the early formation of habits of minute accuracy in mechanical execution, which is more remarkable in this performance than the composition. Not only is the spelling correct, but the punctuation is, for the most part, accurate enough for the press; and capital letters are used with exact propriety. An attention to all the niceties of mechanical execution was ever afterwards characteristic of Mason's writings, even in the most familiar letter.

To Mrs. Harriet B. Turner.

Washington, April 8, 1826.

MY DEAR AUNT—

I thought you would be glad to hear from me, and as I have been learning to write, I thought I would write you a letter. A part of the winter I went to Mr. Saunders's school and studied Latin. I have read the books which you brought me last summer, and I like "Jack Halyard" best. I like "Evenings in New England" very well, and "Kings of England" nearly as well as Jack Halyard. Burr* sends his love to you, and we both wish to see you. B. likes "Poetic Tales," and "Robert and William," the best of all his books. Burr and I play with our bows and arrows, our hoops and our balls, and I should like to be old enough to have a kite. Please give my best love to my cousins in Richmond.

Your affectionate nephew,
EBENEZER PORTER MASON.

* His younger brother, David Burr Mason.

Had it been the express object of his parents, from his infancy, to train him for the studies of Natural Philosophy and Astronomy, I know not how they could better have employed him, at this age, than in exercises with "bows and arrows, hoops, balls, and kites,"—exercises which clearly constitute a branch of Experimental Philosophy. It was not until after I had devoted many years to the studies of Chemistry and Mechanical Philosophy, that I became fully sensible that I was, in my professional pursuits, only extending inquiries and experiments with respect to the properties of bodies, and the laws of motion, which had constituted the very pastimes of my childhood. Casting an eye back upon the amusements which Nature has provided for infancy and childhood, I perceived that the greater part of them are actual observations and experiments in Chemistry and Natural Philosophy. With the taper which first fixes the gaze of the infant eye, the child commences his observations on heat and light, and longs to test their properties by the sense of touch as well as of sight. With throwing from him whatever plaything his nurse puts into his hand, he begins his observations in Mechanics, and pursues them successively, as he advances in age, studying the laws of projectiles and of rotary motion in the arrow and the hoop, of hydrostatics in the dam and the water-wheel, and pneumatics in the wind-mill and the kite. The delight which Providence has connected with these exercises, serves the two-fold purpose of filling what would otherwise be a joyless and sterile period of life, with transport and glee, and at the same time stimulating the unconscious votary to the acquisition of that knowledge of the powers and properties of natural substances, and

natural agents, which is essential to his sustenance, his safety, and his well-being. Most of the feats of young children, when they can for a moment escape the vigilant eye of the nurse, and play with fire or water, in short, most that goes under the odious name of *mischiefs*, I have learned seriously to regard as merely experiments in Chemistry and Natural Philosophy, performed in obedience to the irresistible promptings of Nature herself, for the ultimate purpose of initiating all her children in her laws, so far as is essential to their safety and happiness. This object being gained, the love of such exercises declines; but here the philosopher begins, and prosecutes the same inquiries still further, and by the same methods of experiment and observation. Could we, in later life, interrogate Nature with half the assiduity and enthusiasm with which, in infancy and childhood, we commenced the same process, we should speedily extract from her every secret of her bosom.

Had the subject of this memoir retained his fondness for the healthful and invigorating sports indicated in his letter, they would probably have had the usual effect in strengthening a physical constitution naturally frail, and which peculiarly needed invigoration, in order to bear the workings of a mind of such unusual activity. But he unhappily exchanged, to a great degree, pastimes of this class for mechanical contrivances and sedentary games, especially chess, a game which he learned in early life, and in which he acquired, it is said, great skill.

A letter before me, written to his cousin when he was eight years old, mentions that he was reading the "Wonders of the World," a book well fitted to cherish

his love of Nature. By means of Sunday School Libraries, children have been for some years past furnished with books far better suited than those formerly in use, to the improvement of their moral and religious characters ; but parents and instructors do not appear to be sensible of the great importance of this subject in relation to their intellectual powers. A juvenile work on the " Wonders of Nature," or a book of travels, or a captivating story, which a child of genius reads, not unfrequently determines his taste, and fixes the bias of his mind forever afterwards. An incident that has deeply touched the heart of a child, has often been known to impart its coloring to all his future destiny. The parents and guardians of young Mason were fully apprised of the importance of this subject, and permitted no books to be thrown in his way but such as were well fitted to train his mind to sound knowledge, and his heart to virtue.

When this interesting child was five years of age, his father became connected with Miss Phœbe Tallmadge, daughter of John Tallmadge, Esq., of Warren, Con., a lady of refined manners, unusual intelligence, and ardent piety. She at once discovered the value of the diamond committed to her care, and until the age of seven, and in after years when he was under his father's roof, she was of invaluable service to him, especially in correcting many small eccentricities of character into which a mind like his was prone to fall, and preparing him to meet with the common trials, and discharge the common duties, which are the allotment of man. And he always through life regarded her with the warmest affection, and felt the highest respect for her wisdom, prudence, and firmness.

From the time he was eight years old his education was much under the direction of his aunt, Mrs. Turner, whose maternal interest for him was repaid by an affection truly filial. The "Reminiscences" with which she has kindly favored me, and the large pile of letters in my possession addressed to her, will from this period constitute a great share of the materials of his biography.

"My residence (says Mrs. T.) during the earlier periods of his childhood was in North Carolina, and I did not see him after the death of his mother until September, 1827, when I brought him with me to Richmond. On our journey from New Haven, I was surprised to discover the most intense curiosity excited in his mind by the steam-engine in the boat. My apprehensions were strongly awakened for his safety, as it seemed impossible to withdraw him from the inspection of the machinery, and from following the captain through all parts of the boat, to solicit explanations. These inquiries he never relinquished until he had gained a thorough knowledge of every part of the engine. On reaching home, he took of his own accord some books on Natural Philosophy, and with the aid of the diagrams and further inspection of an engine, he was soon able to draw all parts of the machinery, and explain their construction, so that on our return to the north, in his tenth year, he had it in his power to amuse the captain with his drawings and explanations."

In a letter written to his aunt while she was from home, the previous year, he mentions as having found in a neighboring library "several very interesting books, such as Stewart on the Steam Engine, and Wood on Railroads."

Mrs. T. proceeds: "I took him to the toyshops in Broadway (New York) with the view of watching the effect on his mind. He looked around with great apparent indifference. Even when I pointed out some of the toys, he was entirely unmoved until he espied a few books. He then approached me timidly and asked 'if he might read them?' I answered, No, my dear, look about you and see if you cannot find something that is curious to gratify you. In a short time he discovered some miniature philosophical instruments, and was at once deeply interested. The only toy he brought along with him was a small printing-press, with which he printed his own poetry.

"As soon as we arrived at Richmond, he became a member of our school for young ladies, and engaged in the various studies that occupied them. In Arithmetic he surpassed them all, being perfectly master of every thing contained in Colburn's Arithmetic when eight years old. Even then, few persons equalled him in the facility with which he made his calculations, especially in fractions. In the elementary books of Natural Philosophy, Chemistry, and Astronomy, he took the lead. The globes were his playthings, and exercises on them constituted his favorite amusement. He would seat himself on the carpet near them, and ask questions until he had exhausted either the patience or the capacity of his instructors. There was nothing at that early age which transported him so much as lessons on the stars. I began with showing him a single constellation on the globe, and then pointing out the same in the sky, until he became familiar with all the leading constellations. He was also much delighted with a set of astronomical transparencies in

our possession. He used at that time to recite with deep feeling Bryant's 'Song of the Stars,' and other poems of that description. During his boyhood, he was in the habit of committing to memory a verse of some author while dressing in the morning, and thus secured to himself a fund of entertainment for those who loved him, and for those only. He always showed an instinctive dread of every thing like display. This trait, I believe, was strikingly manifest to all who knew him during his life. I have seen his friends deeply interested and affected by his recital of the 'Death of Absalom,' by Willis, at nine years of age. The tenderness and pathos of his voice, and his appropriate and discriminating intonation, surprised us. He learned at that period to love the poetry of Wordsworth, and was almost the only one I could find in my daily intercourse who discovered his beauties, and participated in my admiration of that poet. The Latin Grammar was the only study that oppressed his spirits; and we resolved to lay it by and to allow his taste to guide him, our great anxiety being to lessen the mental action if possible, and to call forth the physical. The gratification he derived from the acquisition of knowledge, occupied his spirit so intensely that the principle of emulation, the usual stimulus presented to young minds, made no impression upon him, although he delighted in the approbation of his friends. He was perfectly satisfied to remain in his little chair by my side, while engaged in recitations with his class, instead of taking his station at the head, to which he was generally entitled. We used every precaution to avoid giving him the idea that there was any thing uncommon in his natural powers, or in his attainments, de-

siring that the beauty of humility should not be tarnished, lest the gem which was daily appearing more precious, should be robbed of its lustre."

It was fortunate for our young friend, that his early education was committed to those who knew so well how to appreciate the gifted powers of his mind, without neglecting, or even sacrificing, the best affections of the heart. The vanity of parents and friends not unfrequently imparts its own deformities to a child of genius, and supplants the lovely simplicity of nature with pride, arrogance, and self-conceit. The fruits of this happy training of the child, were conspicuous in the youth, which was characterized by a remarkable degree of modest simplicity. He always appeared to me to be governed far more by the love of success in difficult undertakings, than by the spirit of emulation.

A letter to his younger brother, written at this period, indicates the state of his mind, and the facility of composition he had acquired at the age of nine years. The language and the punctuation scarcely require the least correction.

To David Burr Mason.

Richmond, April 14, 1828.

MY DEAR BROTHER—

Your last letter to me I liked very much. As I wrote to Father last, I must write to you this time, but I write to all the family as well as to you.

Aunt Turner has made a waste piece of ground into a garden, and planted a great many flower seeds in it. A great hail-storm came the other day, but did not injure any of the plants. She has given each of the boarders a bed to take care of, but she says she expects me to be her principal gardener, because that will

strengthen my constitution. I have been to see a Panorama called the Conflagration of Moscow. It was really splendid. The lamps were all put out and the curtain drawn up. We could then see in the distance a long line of fire spreading gradually. Close to us were several towns, representing the Kremlin of the Czar, which reflected the light of the fire, and seemed nearly red hot. The inhabitants of Moscow were seen evacuating the city, moving along with their baggage, and hurrying to leave the awful scene. Further off was seen Buonaparte's army moving along. The towers were all on the sides of the Panorama, except one, which was in the middle, and from each side of this tower was something like a wall spreading out; but I think it was part of the palace. At the same time drums were beating, bells ringing, trumpets blowing, with several other kinds of soldiers' music. We could see the incendiaries passing along to and fro with their torches, among the inhabitants who were evacuating the city. They were employed by the Emperor of Russia to burn the city, so that Buonaparte could not take it. The moon was represented beautifully, and seemed to twinkle from the clouds of smoke which were rising. All on a sudden the inhabitants began to run, and the incendiaries to move very swiftly. Then we could hear the musketry which was shot off by Buonaparte's army. Suddenly I saw a smoke rising behind one of those towers, and flames burst out, which was owing to the explosion of a mine of gunpowder extending under the wall. This was done by order of the Governor of Moscow, at the time when Buonaparte's army was nearest to the mine. The fire spread along the wall, and destroyed it, until it reached the

tower. There it stopped a little while, but it ascended soon and the tower tumbled down. The fire then continued to flow up the wall on the other side of the tower; but the curtain was let down before it stopped. I think a good deal of it must be owing to phosphorus, especially the slow spreading of the distant flames.

The inventor of this Panorama was Maelzel. He also exhibited several *Automata*. The first one was a Bass Fiddler. He had a fiddle between his legs, and as a man played on the piano forte, the little fiddler followed him through every note, but he did not make any sound. The next ones were the *Speaking Figures*. One of them said "Papa" by lifting up one arm, and "Mamma" by lifting up the other. The next was a boy, which said "Holloo" "Holloo." The last was a rope-dancer. He stood on his head on the rope and kicked with one leg, then extended one arm, and then the other, with a variety of other feats. This was all done by machinery.

Another man named Pratt exhibited a picture called the "Destruction of Sodom and Gomorrah." The room was darkened and we saw at a distance magnificent houses, temples, and palaces, blazing, and fire coming down from heaven upon them. I could see through the flames the tower of Babel standing on a hill. There was also a river running with a bridge over it. Near us were two peaks with a road between them leading up to very high mountains. Lot and his two daughters were seen in the road just going to disappear behind one of the peaks, and Lot's wife was at the bottom of the hill turned to a pillar of salt, looking back to Sodom. There was a *Volcano* represented also. It seemed as if mountains were piled upon each other.

As to-morrow is the usual time for recreation, we are going into the country to have a little holiday, for I like the country very much. I am now studying Chemistry, French, English Grammar, Arithmetic, and Composition. I am reading Telemachus and Scott's Recueil in French. Give my love to Father and Mother and sister, and all my friends.

Your affectionate brother,

EBENEZER PORTER MASON.

The foregoing description shows that our interesting child had already acquired that most essential element of education, *habits of fixed attention*. In this picture-loving and sight-seeing age, the minds of children are stimulated by a restless desire of novelty. Every book placed in their hands must be filled with pictures. One of these is scarcely seen before the next is called for, and when the whole are thus hastily reviewed the interest in the book is over, and it is of little further use to anybody. Nor is this superficial habit of attention confined to children, but characterizes a large portion of the reading public. Crowding our elementary books, especially school books, with pictures, is, in my judgment, one of the most conspicuous errors of the present age on the subject of education; but the method of using such pictorial representations is also extremely injudicious, as its tendency is to produce the most superficial habits of mind. I know of no better way of counteracting this evil than that pursued in the case of young Mason. He was taught from his infancy to learn *all* that was indicated by one picture before proceeding to another. With his eye fastened on the successive objects represented by any cut, he was told the

story of each, and afterwards called on to recite all the particulars comprehended in the picture. By this process, a restless and idle curiosity was prevented, fixed habits of attention were formed, the powers of observation improved, the memory strengthened, and the mind rapidly stored with knowledge. The habit of dwelling upon the *individualities* of every object submitted to his inspection, inspired by such judicious training in infancy, accompanied him ever afterwards, and its fruits are discernible in the account which he gave of the show in the preceding letter. It is, by the way, a most excellent method of initiating children into the art of composition, to let them write out a full description of sights which have greatly interested their feelings. How much superior are themes like these to the abstract subjects frequently prescribed to them in their earliest attempts at composing! In the vexatious and discouraging effort to say any thing to the purpose on such a topic, they acquire an unconquerable dislike to this essential department of education.

But along with his powers of observation, young Mason was cultivating that *delicacy of hand* which is so useful and necessary to the practical astronomer. I have in my possession a specimen of his penmanship written at this period, and transmitted to his father. It seems to have been a transcript of a copperplate engraving of some teacher of penmanship, exhibiting no less than seven different styles of handwriting, including German, Italian, and other ornamental hands. The copy is so finished that I was in doubt until after a close examination whether it was done with the pen, or

was in fact a copperplate engraving. The passage written is as follows :

CHILDHOOD.

“ Now take the germ and make it
A bud of moral beauty. Let the dews
Of knowledge, and the light of virtue, wake it
In richest fragrance, and in softest hues ;
For virtue leaves its sweets wherever tasted,
And scattered truth is never, never wasted.”

“ My anxiety for him (says Mrs. Turner) was increased at this period, by his habit of resorting to his book as soon as the school exercises were over, instead of engaging in athletic sports, often to the neglect of the summons to his meals unless personally sought for. The books which furnished those attractions, were such works as the Library of Useful Knowledge, and treatises on Natural Philosophy.

“ In one of our excursions to the country after he was nine years old, I told him it was my wish that the books should all remain at home, and not fill the carriage pockets as usual. I was desirous that he should observe more of what was passing around him, and enjoy the amusements of the country. But he was so importunate for leave to take *one* number of the Library of Useful Knowledge, that I consented. I frequently pointed out to him passing objects, but found his attention wholly absorbed by the book. I asked him to let me see what furnished him with so much entertainment, and found it to be Bacon's *Novum Organum*. I entreated him to lay it aside, believing that he could not understand it. He assured me that he did, and was

deeply interested in it. The visit furnished him with little gratification, as the library of our friends was kept locked, on the supposition that such a child could have no use for books but to injure them. His only resource for amusement, was to copy with his pencil some of the beautiful groups of flowers from the carpet, some of which are now lying by me, touching mementos of the activity and ingenuity of his spirit.

“In the summer of 1828, he accompanied me to the mountains of Virginia, and was deeply wrought on by the sublimity of mountain scenery. His sensibility to the beauties of nature was extreme. The earliest of his poetry in my possession is on the ‘Rising Sun,’ and the latest is an expression of his rapturous emotions on contemplating the stars. Many hearts became interested in him during this journey, and many cords of love were touched which never ceased to vibrate for him. We passed a few days with President Cushing, at Hampden Sydney College. He was so strongly attracted by the attention and curiosity manifested by one so young, that he allowed him the gratification of attending his lectures, and took great pains to show him the apparatus, and to explain its uses. He was almost wild with delight, and when about to leave them, he entreated me to allow him to remain a few days, at the earnest solicitation of the family. Finding we were obliged to proceed, the tears fell abundantly—the only time I ever saw him unable to yield cheerfully to the wishes of those who had the care of him. A young friend who was with us, appealed to his constancy of affection for her, and expressed her sorrow that he should wish to forsake her. He said his affection for her was unabated, but he could not bear the

thought of leaving that apparatus. While spending a few days with the Rev. Dr. Rice, at the Union Theological Seminary, that good man wisely remarked, 'You have nothing to do for that boy but to attend to his *physical* education—he will do every thing else for himself.' ”

Although his father, the Rev. Mr. Mason, was denied the privilege of daily cherishing and guiding, by paternal care and counsels, the expanding faculties of his child, yet by his letters he lent his aid to those who were the immediate guardians of his son. The following letter was received soon after the party returned from their visit to the mountains. It is addressed in part to the Rev. Mr. Turner, and in part to his child.

Washington, Sept. 24, 1828.

MY DEAR BROTHER—

When this reaches you may it find you all returned in safety and in health to your own dear home, rendered more pleasant to you in consequence of the toils, the cares, the pleasures, and the various incidents of your late journey. Perhaps what you have witnessed and experienced will lead you, in the calm retirement of home, to profitable thoughts on the “journey of life,” and to sweet anticipations of a “heavenly home.” If all the little journeys we make to visit distant friends, or for the improvement of our health, or on errands of business, tend to our better preparation for “that rest which remaineth for the people of God,” and to make on our minds an abiding impression that we are “strangers and pilgrims on the earth,” how great will be the pleasure and profit of them in the end! I hope your late journey will prove to have been a profitable as

well as pleasing one to the *young travellers* of your company, as well as to their experienced guardians. I hope soon to read a description of the tour, at least some parts of it, from Porter's pen, accompanied with the more impartial and just one from yours or sister Harriet's.

"How is my dear boy? I am sometimes impatient to see his sober yet happy face before the expiration of another year; but, all things considered, I am reconciled to his absence while he is blessed with health, and feel that I have great cause of thankfulness to God for his kind providence respecting him.

"MY DEAR SON—

"If you think of your father as often, and with as much love, as he thinks of you, I am sure this letter from my own hand will make your heart glad. It makes me and your dear mother, and your brother and sister all happy, to receive your letters, when you write them neatly, and tell us what you are doing, where you go, and what you see that interests you. We hope that you have had a very happy vacation; that you have been gratified and benefited by the journey; that you have returned in health, and with a contented, thankful heart; and that you are now resolved to show your gratitude to your kind uncle and aunt, by good behavior. Let every thing in respect to your lessons, errands, work, or amusements, be always done just as they wish. And when you know what they would have you do, don't wait till they tell you of it, but give them the pleasure of seeing that it is already done, and save them the needless trouble of giving you particular directions repeatedly. Always think, yourself, what you

should do, without asking one unnecessary question, or waiting to be told. Thus, by being obedient, kind, and attentive to them, you will please your parents at home, and will, I hope, please your great Father in heaven.

“All the members of our family unite in much love with your affectionate father,

STEPHEN MASON.”

This letter was soon answered by the dutiful child as follows; and I transcribe the more trivial as well as the more important incidents, because it is not unpleasant to see something of the appropriate traits of childhood, mingling with thoughts and feelings that were far above his years.

To the Rev. Stephen Mason.

“Richmond, Oct. 7, 1828.

“MY DEAR FATHER—

“I received your letter yesterday, and your wishes shall be fulfilled, by giving you a description of our journey to Bedford, where uncle Turner’s mother lived. When we arrived at the house of Mrs. H., a friend of uncle Turner’s, I found two boys, W. and L., and we all amused ourselves with stopping the water in the stream near the house. We stopped at the Theological Seminary, and Dr. Rice promised me that he would take me to President Cushing’s College to see the laboratory.”

[After detailing the particulars of the first introduction to his new cousins, the relatives of his uncle, he adds:]

“They were very kind to me, and I became so much attached to them that it distressed me exceedingly to part with them. I read a great many books as we

were riding, aunt T. and myself being alone in the carriage. When we returned to Col. C.'s, we staid several weeks, and I learned to ride on horseback, and was very happy there. From thence we went to Prince Edward, and visited Dr. Rice and President Cushing. They took me to the college, and I saw some experiments on magnetism. There was a great magnet, a teetotum spinning on the bottom of it, and another teetotum spinning on the bottom of the first one, and a ball on the bottom of the second teetotum, and another ball on the bottom of that. I saw all the models of the mechanical powers, and some mercury, and an air-pump, and an electrical machine, with which I was electrified. I saw the different kinds of thermometers, and an orrery, which, by turning the handle, would make the Moon go round the Earth, and the Earth, Venus, and Mercury go round the Sun; but there were no other planets. I saw iodine become a violet gas, and I saw the voltaic battery, but it was not in action. The next day I saw the solar microscope. The shutters were closed, and the president first placed a mirror outside the window to reflect the sun's rays in a horizontal line, and then showed us all the focuses by the dust flying through the rays. Then the things to be magnified were put in—first, a louse, the hairs on its leg looked as big as a finger; then a fly's leg, the hairs of which looked as big as my wrist, and the pores of wood looked as big as my head; then a live fly was put in, but he walked so near the focus that he was burnt. Some days after that I went to the Commencement. I thought the valedictory address was best.

“Day before yesterday, I went down to Mrs. Young's, where I amused myself with drawing. In the eve-

ning I read a book on Natural Philosophy, and next morning I returned home. To-day school begins, and I will endeavor to profit by your advice, and commence my studies with renewed energy, for I have had a great deal of amusement during the vacation.

“Your affectionate son,
E. P. MASON.”

In the same sheet Mrs. Turner writes: “Often on my journey did I wish you were present to partake of the pleasure I derived, merely from witnessing the unmingled delight which the kindness of friends, and the varied scenes through which we passed, furnished to the happy spirit of our little boy. He has made a great many friends who I am sure will never forget him, and many tears have been shed by him at the separation. He entered with as much eagerness into out-of-door amusements as I could wish, but notwithstanding this, he read all the books I took along with me in the carriage. He reads the book of Nature more understandingly and feelingly than any young mind I ever saw; and his temperament is so exquisitely delicate, that I fear there is much suffering in store for him in this cold-hearted world. I was constantly watching the effect of the attention he engrossed wherever he went, apprehending it might lessen his modest simplicity, and excite in him vanity and self-conceit. I witnessed, however, no such effect, but merely a kindling of his affection, and an anxiety to stay with every friend who requested it.

“We visited Dr. Rice at the Theological Seminary in Prince Edward. The Doctor manifested an interest in the child at first from regard to his mother; but when

he became acquainted with him, he expressed an unusual solicitude for him. I had a long conversation with this excellent man, respecting the course which ought to be pursued in the education of our dear boy. He said to me, 'His *physical* education is what you have to pay special attention to, in order to furnish a frame vigorous enough to sustain the powers of thought and intense curiosity for knowledge which he exhibits.' On one occasion his heart was almost broken. Doctor Rice took him to the college. In the Philosophical Chamber, President Cushing was performing experiments preparatory to the general examination. It seemed to astonish them all that the little boy should understand them so well, and should be so delighted. The President took him home with him, and went with him to the Philosophical Chamber every day we staid. He and Dr. R. both urged me to leave him with them until my return from Col. C.'s, where I was to stay ten days until Commencement; but I knew that his mind would be occupied incessantly, either at the college or in the President's study, and my object was to secure to him as much bodily activity as possible. I therefore reluctantly took him back with me, though it grieved him very much. The French language is to be his principal study this winter, under a Parisian master. I shall endeavor to keep all story books out of his way, that the time which he devotes to sedentary pursuits shall be study and not mere entertainment, and have a large portion left for active exercise."

His affectionate and attentive aunt continued to watch over her interesting charge with maternal interest and fidelity, but unhappily found it impossible to withdraw him from his darling books into the field of

active sports, although she was fully aware of their importance to so delicate a constitution. In the Reminiscences with which she has kindly furnished me, she proceeds with his early history as follows :

“ We returned to the North in August, 1829, and he took with him a complete set of maps, which he had copied from the school Atlas, and a book of his Compositions which I suppose must be still in his father's possession.* The method adopted in writing these was, after hearing a story read, to take a slate and express in his own language his recollections of it. I was often surprised at the result of those efforts, and regret exceedingly that they have passed out of my hands.”

The method of teaching composition thus practised with young Mason, cannot be too strongly recommended. It is difficult, but not impossible, to cultivate in children a love of the pen. The mode which I have found most successful, is first to teach the young pupil how to take notes. He takes his pencil and a strip of paper, and writes a few *catch-words*, or brief expressions that serve merely as memoranda, by the aid of which he afterwards writes out in full all he can remember of what he heard. Let him write but little at first. He will gradually learn to take more copious notes, and to be more judicious in the choice of the expressions he records ; and these materials he will learn more and more to expand, until he acquires the power of writing out from memory the greater part of any discourse he has heard. I have known lads of twelve

* I learn from the Rev. Mr. Mason that nearly all the papers of his son, and most of his letters to him, have been irretrievably lost, in his numerous removals. By this means one important resource for this memoir has been cut off.

and fourteen years of age derive great benefit from attending in this manner a course of popular lectures, especially on Chemistry—a science whose simple but novel truths, accompanied by experiments that usually are extremely interesting to children, render it peculiarly suited to such a purpose. A similar practice may be very advantageously applied to sermons, and serves to occupy the young hearer agreeably, and to prevent those roving habits of mind, and that habitual inattention, which are equally unfavorable to intellectual and spiritual improvement. But we recur to the interesting recital of Mrs. Turner.

“The passion for Astronomy kindled in these opening hours never declined, but was lighted by every beam of intelligence his eager spirit could catch. We had no stellar maps at that time except two, which I had copied from an English work on Astronomy. Dr. Rice, discovering his intense thirst for this science, made us a present of a work entitled “Wonders of the Heavens,” in which were maps of the constellations with plates exhibiting telescopic views of the moon, which gratified him exceedingly. Burritt’s maps were not seen by him until after he was twelve years old. They were seized by him with the greatest avidity, and were almost constantly his evening companions, until he was fully in possession of every thing they contained.”

- During the winter of 1829, Mrs. T. was a severe sufferer under the effects of a fall, which for a time deprived her of the use of her limbs. In her beloved child she found a sweet solace. “His tenderness and solicitude (she observes) surpassed any thing I ever witnessed. His intelligence and loveliness contributed

to diminish the acuteness of my sufferings, by furnishing the most interesting occupation for my mind. He had less of human frailty in his temper and disposition than any child that has fallen under my observation, in my long experience of the care of young persons. His tenderness of conscience, and consideration for the feelings of others, were never surpassed."

His father also writes, in a letter received since the death of his son: "From his very infancy he manifested an uncommon tenderness of conscience, greater than what I have witnessed in any other person, insomuch that I was almost persuaded that he was a subject of divine grace when a very young child. Before he was one year old, he had learned to practice cheerful submission to the will of his parents, and never since have I known him show the least resistance or opposition to parental authority. In reflecting upon his life, I can think of nothing which would absolutely disprove his having been sanctified from his birth, save the general fact, that he seemed more interested and engrossed with other subjects, particularly with the pursuits of science, than with religion." The aspect which the character of young Mason presented to the watchful eye of his aunt at this period, was recorded by her in the following lines.

"A boy! yet in his eye you trace
The thoughtfulness of riper years;
And tales are in that serious face
Of feelings early steeped in tears;
And in that tranquil gaze,
There lingers many a thought unsaid,
Shadows of other days,
Whose hours with forms of beauty came and fled.

And sometimes it is even so ;
The spirit ripens in the germ ;
The new-sealed fountains overflow,
The bright wings tremble in the worm,
The soul detects some passing token,
Some emblem of a brighter world,
And with its shell of clay unbroken,
Its shining pinions are unfurled ;
And like a blessed dream,
Phantoms apparelled from the sky,
Athwart its vision gleam,
As if the light of heaven had touched its gifted eye."

But it was not to the partial eye of kindred alone, that the early childhood of Mason appeared to develop extraordinary mental endowments, and to afford prognostics of future greatness. I have been favored with a communication from a gentleman, *Mr. G. H. Hollister*, who knew him as a companion and playmate in the days of infancy, and after an interval of a few years, renewed at college an intimacy which lasted during the remainder of his life. Mr. Hollister gives the following account of Mason up to the period when he was eight years old.

"All who have any recollections of Mason's early childhood, agree in the testimony that he was a boy of an original, and somewhat singular turn of mind. His faculties were developed so early, as to make his acquirements the object of considerable notice in his native town, before he had reached the age when other boys are beginning to learn their alphabet. Whenever the anxious mothers of Washington appealed to the emulation or pride of their backward sons and daughters, little Porter Mason was always presented to their minds as an example of excellence most worthy of their

imitation. As soon as he had learned the first rudiments of the English language, he seemed to lose all taste for the sports which had before amused him, and gave himself up, almost exclusively, to the pursuit of knowledge. It is related of him that when he went, for a visit, with a company of other children, to the house of a neighbor, he seldom remained long with the group, but sought the first opportunity to hide himself in a private chamber, or to steal away to some shady nook of the garden, to be alone with a favorite book ; so that when the hour arrived for tea, the young deserter was rarely to be found without diligent search. This habit of retirement, added to a gravity of countenance, not often to be met with in one of his years, gave him, among his little circle of companions, the title of 'Minister'—a title which pleased him so much that he gave a large portion of his time to reading upon religious subjects, with a view to qualify himself for the clerical profession, long before he was able to understand the importance or sacredness of the office. He used humorously to say, 'he had already taken orders, and expounded the doctrines of the church to every peach-tree and currant-bush on his father's premises.' These discourses to the vegetable kingdom were recited in the most clerical tone, and enforced with a variety of gestures suitable to the capacities of his imaginary audience.

"His schoolboy days were characterized by the same love of solitude and study. The old elm is still standing upon the village green, under the shade of which he used to spend the quiet summer noondays, with his eye fixed on some ancient history, or tale of fiction, regardless of the mirth of the girls and boys who were

sporting around him. In school hours, if a hard problem was to be solved, or an intricate lesson explained, any thick-headed or idle boy knew well that Porter was able and willing to furnish him an easy solution of all his difficulties. During his residence in Washington, he devoured, with an eagerness that could never be satisfied, every thing of a literary character, both in prose and verse, that fell in his way. He was also singularly studious to collect oral information from all who were willing to communicate it. This led him to relish the society of adults rather than of those of his own age. I remember well that in the sabbath-school class, he always contrived to station himself next to the teacher, where he would sit with his eyes fixed upon the boy who was reciting. This he did both to prompt the scholar if he should happen to fail in his answer, and also to question the teacher upon whatever appeared to him unexplained or obscure. He could repeat more verses of Scripture than any boy in the class, and was so ready to quote a passage when it was wanted, that we had little need of a Bible to search for references."

Of his interest in the study of the Scriptures, his father gives the following account: "When at home he was a member of my Bible Class, and although younger than most of the members, he never failed to be present at the meetings, and to show that he had gained a thorough knowledge of the lessons. The clearness and strength of his intellectual faculties, were no less perceptible in his biblical than in his mathematical investigations. I may truly say, that from a child he has known the Scriptures—that his mind has been familiar with the evidences of Christianity—that he

never appeared to entertain a doubt of the truth and divine inspiration of the Scriptures."

In the year 1829, Rev. Mr. Mason removed from Washington to Nantucket, where he became pastor of a Congregational church. For some time previous to this, the state of the family had been unsettled and unhappy, and Mrs. Turner, to whose charge the interesting child had been committed, had recently been sorely afflicted by the consequences of a severe fall, to which allusion has already been made.

I have before me a letter written at this time by Mr. Mason to Mr. and Mrs. Turner, from which I may be excused for making a few extracts, as they illustrate the views entertained at that period of the subject of this memoir.

After a few introductory remarks, the letter proceeds: "I have hoped that our dear children might somehow derive spiritual good from the late sufferings of their parents and guardians. Should our trials render us more spiritual and heavenly-minded, should they render us more faithful in our duty as parents and teachers, more prayerful, solicitous, and laborious for the salvation of our dear children, the end will prove them to have been great blessings in disguise. My anxiety for Porter has, I think, never been so great as in the last three months. Not that I consider him in peculiar danger of losing his soul from the influence of worldly temptations; though I have fears that his eager pursuit of knowledge, or rather that his love of literary and scientific pursuits, will prevent his giving due attention to the claims of religion, and his having a deep and habitual sense of its importance. I cannot but fear that he is in danger of making his intellectual improve-

ment, rather than his preparation for heaven, a primary object. When I consider his age, and his uncommon maturity of mind, I feel that he is capable of understanding his character as a sinner, and his obligations to the Saviour; and that no instruction or influence is at present so important to him as that, which directly tends to convince him of sin and to bring him to Christ. I feel the more on this subject, when admonished, as I often am, that he is an extraordinary child, and that he may be taken from us by death at an early period of life. Mrs. D. said to me, when we were last in New Haven, 'You must not expect that your little son will live long.' I remember also the solicitude and fervent prayers of his departed mother for him. O how often did she present him at the throne of grace, and like Hannah, devote him to God! When I think of these things, I am anxiously hoping that evidences of experimental religion will appear in him ere long. And I do most earnestly pray that since it is the will of God, in his holy providence, that he should be under your immediate care and instruction, you may have wisdom and grace to direct you in the use of such means, as God will bless to the sanctification of this dear child."

It is much to be regretted that the letters of the son to the father, with a few exceptions, have been lost, so that we are unable to say how far his feelings responded to the yearnings of parental love in respect to his immortal interests. All that we can learn, however, either from his own writings, or from the testimony of others, is evincive of a most filial and dutiful spirit. The religious impressions early enforced by the fervent prayers and earnest counsels of his parents, we have reason to believe were never obliterated from his

mind. The apprehension that great precocity of the intellectual faculties is the prognostic of an early tomb, is probably but too well founded. It is indeed a source of needless anxiety to some parents, whose partial eye detects in the ordinary development of the faculties of a child, which, when attentively watched, always appear surprisingly rapid, marks of extraordinary powers when there is nothing very uncommon. In the case before us, however, there was no room for self-deception, since the signs of such precocity were unequivocal, while the uncommon delicacy and frailty of the physical system with which they were united, afforded peculiar cause for alarm.

When Mr. Mason found himself pleasantly settled at Nantucket, he once more assembled his beloved family around him, and Porter among the rest. He had come by sea from Richmond to New York, and found his way thence to his father's new home. His first letter from Nantucket is addressed to Mrs. Turner, dated July 11th, 1830.

“MY DEAR AUNT—

“I have so many things to tell you, that I hardly know where to begin. I had a very pleasant passage, and I can say that I was not sick at all on the voyage. I intended to go from New York on Friday evening, when I could have company; but that very day, at dinner, I heard that there was a sloop going to Nantucket next morning, the very one which father and our family went in. I resolved to go in it, but it was now four o'clock in the afternoon and it was to sail at five. I had to pack up very quick and go on board. I arrived here Sunday afternoon after a passage of about two

days. All Sunday there was a brisk wind against us. When I came to the wharf, I was surprised to see so large a city. It is nearly as large as Richmond, and the population is between seven and eight thousand. The place is called Nantucket. The houses are nearly all of wood, and are painted any way, white one side, red another, green another, or some such way, and they are for the most part covered all over with shingles. They have walks on the top to get a view of the sea.

"There are some trees on the island. In the town they are about as thick as on Shocco Hill in Richmond; but in the country there are not any except a small grove for the cattle to find shelter from the storms. The soil is sandy, but when I rode out of town the grass was so green, and all was so pleasant, that I never thought of the want of trees and fences. There are a great many more ships and vessels here than in Richmond, most of which are engaged in the whale fishery. When I came into port they were so thick that our sloop could hardly enter. There have been several launches here since I arrived, one of which I went to see; but as they could not prepare it till several hours afterwards, I returned. There is but one steamboat here at present, called the Marco Bozzaris, which runs twice a week between here and New Bedford.

"D. and I entered Coffin-school Monday June 28th. It is a large school, and a great many boys are idle and vicious. Nine of them were whipped yesterday afternoon. I now study Cæsar, Arithmetic, Reading, and Writing.

"Our house is large, and there are rooms in the base-

ment story, in one of which D. and I have chisels and other tools, with which we make ships, hen-coops, &c. L. has a baby-house up stairs in her room in which are about six babies, which she instructs. D. and I are both well, and Father and Mother are about half as well as we are. We have a hired servant named Martha. Her parents reside in a part of the town called New Guinea, where the blacks live, and they are a very merry set of people; and now when I wish myself in Guinea I can easily get there."

The reader must not forget that it is the letter of a little boy, ten years old, that he is perusing; but while the style is simple and artless as became the age of the writer, the amount of information it contains respecting his new residence, his studies and employments, and the situation of his family, is as great as could well be contained in so small a compass. Conciseness and simplicity of style were indeed qualities which always characterized his writings.

His uncle, the Rev. Mr. Turner, used occasionally to indulge his humor with him, amusing himself with the sprightly repartees which his pleasantry would elicit. His young friend was fond of receiving such letters from his uncle, and always replied to them in a humorous though respectful tone. I subjoin a few extracts as illustrative of this element of young Mason's character.

To the Rev. J. H. Turner.

"Nantucket, Sep. 25, 1830.

"MY DEAR UNCLE—

"I received your letter of September 2d, and derived much amusement from it. As for Nantucket, so far,

from being the "jumping off place," it lies exactly over the centre of the earth.

"I went to Siasconset a few weeks ago, a small town on the northeastern part of Nantucket. On the beach the sea-rolls very high. It is eight or nine miles from town, composed of fishermen's houses, mostly white washed, where the fishermen stay in the fishing season. A few of the wealthy people have handsome gardens and cottages there, where they reside in the summer season. People here are very fond of puddings: they make blackberry puddings, whortleberry puddings, and puddings of nearly every thing they can be made of, including corn-puddings which they manufacture out of green corn, and I like them much.

"I hope I shall not forget my obligation to you in your old age. My house (if I have one) and all its comforts must be shared with you, and my bed also.—I have not caught a whale yet, but the first one I catch shall be sent you.

"Your affectionate nephew,
E. P. MASON."

To Mrs. H. B. Turner.

"Nantucket, June 3d, 1831.

"MY DEAR AUNT—

"I received your letter yesterday, and am much pleased to hear that you are better. I am now in the first class in school, and study Latin, Greek, Algebra, Geometry, Natural Philosophy, History, Rhetoric, Reading and Writing. I have given up French this quarter, because I could not get along with that and my other studies. I got the first medal, or highest reward of merit, last quarter. Our Sabbath School has

about one hundred scholars, and a pretty good library. A while ago I was librarian, and now I am teacher. When Father went to New York, he bought a paint-box for me, and I can now paint as much as I please.

“ We have lately obtained Peter Parley’s Tales about the Sea—Peter Parley’s Tales about Islands—and his Tales about the Sun, Moon, and Stars. But as I have lessons to get evening and morning, and take some exercise, I have not much time for reading books. I still have the same establishment down cellar as before for building ships, &c. only I have not so much time as formerly to work at it. I wish very much I had those numbers of the Library of Useful Knowledge. I could make some of the things described in them, especially those in the number on Mechanics, since I have an assortment of tools.

“ Your affectionate nephew,

E. P. MASON.”

Our young Scholar had now reached the age of twelve years, and was living in an atmosphere almost purely intellectual. The variety and elevated character of his studies in school, with a standing far raised above all competition—books suited to his taste to absorb little intervals of time out of school—and mechanical structures in which he delighted for his pastime ; occupation so incessant but so congenial to his taste, secured to this period of his life an overflowing of unmingled happiness scarcely known to him before or afterwards.

While in this school, he one day surprised the head master by an unexpected indication of mathematical powers. A scholar of a higher class, went through a demonstration, and was approved as correct. Mason

had not attended to this branch of mathematics, but ~~was~~ near apparently pursuing his own studies. But his attention was arrested by an error in the demonstration, and addressing the preceptor in a slow, measured, precise tone to which he was addicted in childhood, "Is that right?" said he. "Right!" (answered the preceptor) "why not?" Mason took up the demonstration and went through with it, and proved that the conclusion was entirely different from that obtained by the other boy. The preceptor, on meeting Mason's father, expressed a strong conviction of the high mathematical powers of his pupil.

About this time the Rev. Mr. Mason received a visit from his brother-in-law, the Rev. J. Marsh, who wore a pair of concave glasses. Perceiving that young Mason was also near-sighted, he put his spectacles on him, and the family were greatly amused at his manifestations of surprise and delight, as he looked abroad on nature and saw with a distinctness and beauty before unknown to him, the houses, the trees, the birds, and people walking in the streets. In the evening Mr. Marsh took him abroad, and let him look through the glasses at the heavenly bodies. He was filled with ecstasy and amazement. It was the first time he had ever distinctly seen a star or the firmament in its glory. From this period he was furnished with a pair of spectacles, and never afterwards dispensed with the use of them. In one of the last conversations I had with him, only three weeks before his death, in reply to my inquiry "what first turned his attention to the study of astronomy?" he referred to the incident here related by Rev. Mr. Marsh, and spoke with enthusiasm of the new and more exalted views which he thus obtained

of the charms of nature. Being sent on an errand in the evening, he remained out till a late hour gazing on the stary heavens with equal delight and astonishment.

The satisfaction which his father enjoyed in being able to superintend his education and to witness his extraordinary proficiency, is expressed in a postscript to the foregoing letter. "Our merciful God (he observes) lays us under great obligations to be thankful. We have many blessings above what we enjoyed at Washington, particularly one which I value highly—that of educating my children in higher branches than were taught there. P. is making steady advances in his studies, and is the admiration of his teachers and of many others."

Mason remained at this period only about two years at Nantucket, but this time seems to have passed very pleasantly and profitably. "He always (says Mr. Hollister) spoke of Nantucket with enthusiasm, as the spot where his mind had developed itself with the greatest rapidity. This he attributed more to the situation of the place than to any other cause. 'The peculiar habits of the islanders, (he said) living as it were in a little world of their own, the sun rising out of the water, and the stars reflected upon its surface in the evening, made an impression upon my mind that I could never forget. If ever I was any thing of a poet, it was there.' It was here that he wrote many of his literary fragments, some of which, considering the extreme youth of the author, have much merit. There is little doubt that this situation was highly favorable to the growth of his mind; and it is not improbable that it tended much to increase that admiration of the heavenly bodies, which grew at length to be the mas-

ter-passion of his soul. When the eye is confined to a narrow spot of earth, it naturally turns upward to the sky; and the star that shone on the crest of the wave must have made a more durable impression on his mind, and inspired him with a deeper reverence of the wonders of nature, than the same luminary could have done as it shone through the maples that shaded the place of his nativity."

The emotions with which Mason finally bid adieu to Nantucket, in 1835, were expressed in the following lines :

FAREWELL TO NANTUCKET.

"Thou art a barren spot of earth,
A lonely island of the sea,
And though thou'rt not my place of birth,
Thou'st been a welcome home to me.
And now, when I must leave thy shore,
I cannot go without a tear,
To think I cannot see thee more,
Nor tread thy fields to memory dear.
'Tis not alone thy soil I love,
But heave a sad and sorrowing heart,
That when from thee I far remove,
From dearest friends I too must part.
I go to distant, milder lands,
But in my bosom cherish still,
The fond remembrance of my friends—
Thou sea-girt island, Fare thee well!"

CHAPTER II.

FROM THE AGE OF THIRTEEN UNTIL HE ENTERED COLLEGE.

Goes to Ellington school—Early poetical effusions—Love of natural scenery—His comparison of Demosthenes and Cicero—Returns to Nantucket, and becomes assistant teacher—Continues to write poetry—Development of mechanical genius—Removal to Collinsville.

In the autumn of 1832, the Rev. Mr. Mason determined on sending his son to Ellington school, a new institution for preparing boys for college, situated a few miles east of Hartford, in a delightful country village. Under the able superintendence of Judge Hall, assisted by competent teachers, this school had acquired a high reputation, and was therefore selected by the friends of young Mason as a place peculiarly favorable for developing and maturing his uncommon faculties. He had already made considerable proficiency in Latin, Greek, French, and mathematics, and was far advanced in his preparation for college; but he was still too young, by two years, to enter Yale, the lowest limit being fourteen for the freshman class of this institution. His friends, however, were desirous of obtaining for him more finished instruction, and more personal attention, than could be obtained in so large and promiscuous a school as that of Nantucket. He prosecuted his studies at Ellington with great zeal, under accurate instructors, but I have been able to obtain but few memoranda of

this period. . Of the compositions written at this time, those preserved are chiefly poetical. From early childhood he had been accustomed to write fugitive pieces of poetry, but he seems to have regarded none of them as worth preserving, since in a book now before me, in which he transcribed his poetical effusions, the earliest inserted is a translation of the opening lines of the second book of Virgil's Eneid. It is dated, Nantucket, April 6, 1832. During the latter part of his college life, he began to copy such of his poems as he wished to preserve, into a book, arranging them, with their respective dates, in the order in which they were written. He left it unfinished, having transcribed the series no further than to April 3d, 1833, the spring before he entered college. The handwriting in which these productions of his early muse are penned, deserves attention, as indicative of his mechanical ingenuity. It is executed in a great variety of styles of ornamental penmanship, all of which are exceedingly elegant. Since men of genius are as frequently characterized by negligence as by excellence in their handwriting, and since superior penmanship, although a desirable accomplishment, is not always the associate of superior intellectual endowments, I should not lay so much stress upon this talent in the case of my young friend, were it not that it afforded the first indication of that remarkable *delicacy of hand*, which afterwards formed so essential an element in his qualifications for a great practical astronomer.

In the early poetry of Mason, I am unable to discover many traits of the original poet, which are to be sought for rather in the combination and turn of thought than in harmony of versification. He was in fact

much more a being of intellect than of imagination, and was fitted by nature to shine in the investigations of truth rather than in the creations of fiction. There has often been traced a connection between mechanical genius and a certain kind of poetical talent, which exhibits itself more in the happy structure of the verse, than in original combinations of ideas, or in new poetic imagery. The phrenologist would refer the power not to *ideality*, or the faculty of creating or perceiving beauty, but to *constructiveness*, or the power of devising and executing mechanical combinations. In this class of poets we find men whose fame has rested almost solely upon their mechanical inventions, or experimental inquiries into nature, but on reading their biography we unexpectedly find them to have been no inconsiderable poets. Sir Humphry Davy, the most inventive and ingenious of all the experimental philosophers of Great Britain, stands perhaps at the head of this class, and wrote poems distinguished for their easy versification; and Mr. Watt, whose name is so intimately associated with all that is valuable in the steam-engine, was at least an ardent lover of poetry.

That the poetry of Mason was to be referred chiefly to his mechanical genius, has appeared evident to me not only from its intrinsic qualities, but also from the greater success he met with in his earlier attempts in translations than in original compositions, and especially in the structure of *acrostics*, where his ingenuity found an appropriate exercise. A large portion of all the pieces he has collected in the book before referred to are of the latter description. He was also much gifted, it is said, in extemporaneous rhyming.

Indeed, it was in vain that his friends, pleased as they

were with the smooth verses of the schoolboy, endeavored to persuade him that he was a poet. He estimated his poetical genius so low, that most that he wrote was only at the ardent solicitations of friendship, and he is believed never to have afforded a single specimen of this talent in his college exercises. Few of his fellow students knew, until near the close of his college life, that he ever attempted poetry.

But if we fail to find in the juvenile productions of his muse, marks of that inspiration which characterized the wonderful effusions of Lucretia and Margaret Davidson at the same age, yet we shall discover proofs of good taste, of a knowledge and power of language much above his years, and of great ingenuity. The earliest specimen of his poetry in my possession is a translation of the story of the "Wooden Horse," in the second book of the Eneid. It was begun at Nantucket in April, 1832, and finished at Ellington the following year, having apparently constituted several distinct school exercises. It will be borne in mind that he was still under fourteen years of age.

THE GRECIAN HORSE.

"Broken by wars, by powerful fates repelled,
For many years from conquering Troy withheld,
The Grecian leaders, by Minerva's art,
Construct a horse, complete in every part ;
Of bended fir its lofty sides they make,
And then pretend to Greece their course to take ;
But in its gloomy walls and horrid side,
A band of armed men by stealth they hide.
There is an island, Tenedos, in sight,
Well known to fame, and rich in power and might,

Whilst Priam over Phrygia held his sway,
But now unsafe for ships, a faithless bay.
Here, having sailed from Troy, the Grecians land,
And hide their forces on the sea-washed sand.
We think them gone to seek their native shore,
And Troy is buried in long grief no more ;
The gates are opened wide ; the Trojans throng
To see the camps that threatened Troy so long.
Here was Achilles and the Grecian bands,
And here the army lay upon the sands ;
The gift of Pallas draws their gazing eyes,
And all admire and wonder at its size.
And from Thymoetes first this counsel falls,
To place the lofty horse within the walls,
Either through treachery or base design,
Or so decreed the fates and powers divine.
But Capys, joined with those of better mind,
Suspecting Grecian craft, and fraud designed,
Exhorts to plunge it in the rolling waves,
Or to explore its sides and secret caves,
Or with fierce flames the pile to sweep along ;
But various wishes sway the uncertain throng.

Now first of all Laocoon descends
From the high tower—a thronging train attends ;
Far off he cries aloud, O wretched men !
Will you this foolish madness still retain ?
Or think you that the treacherous Greeks have gone ?
Can e'er their gifts want guile ? Is thus Ulysses known ?
The Greeks are hidden in this massive pile,
Or it is built to hide some crafty wile :
Perchance to spy our city, and rush down,
From that superior height, upon the town.

Whate'er it is, e'en gifts from Greeks I fear.
Having thus said, he hurled his whizzing spear,
With headlong force, deep in the curving wood
Of the grim horse that high above them stood.
Fixed fast it stuck, and with a hollow moan,
The hidden sides and secret caverns groan :
And if the cruel fates, and our rash mind,
And blind temerity, had not combined,
Thou, native Troy ! thy glory shouldst retain,
And Priam's lofty towers should still remain."

After passing one session at Ellington, he returned to Nantucket to spend his spring vacation. The journey through a verdant and blooming country, arrayed in the beauties of spring, seems to have charmed him, and the description of it given to Mrs. Turner, in a letter written soon after his return to Ellington, evinces how early he had imbibed a love of nature. "In returning to Ellington, (says he,) we sailed up the Connecticut, and were two or three days on the way, having had little wind most of the time, so that we had a very good opportunity of viewing its scenery. Its beautiful foliage, which, at this season of the year was very luxuriant, was peculiarly pleasing to me, because I had lived for two or three years back where no trees grow ; and when I came to Ellington, every thing had changed for the better since I left it. The trees were all in blossom, and every thing was so green."

Among his papers are preserved a series of "compositions," written at Ellington school. For a lad of fourteen, they are remarkable productions, exhibiting much accurate thought, a pure and just taste, and a style at once simple and vigorous. A predominance of Saxon

English is observable in all his writings, whether earlier or later. The following is the second of the series :

A COMPARISON OF DEMOSTHENES AND CICERO.

“ In the circumstances of these two orators, who are universally allowed to be the greatest that have ever existed, there is a striking similarity. They flourished, severally, in the two greatest republics of the ancient world, Rome and Greece, and both appeared at the most eventful periods of their respective countries. Greece, and especially Athens, had arrived at the utmost height of prosperity and power, and was even on the verge of destruction, when Demosthenes foresaw his country's danger, and exerted his utmost powers to preserve it from Philip's treacherous and crafty designs. But his efforts were exerted in vain ; for his eloquence, although it had power to arouse his countrymen to cry out, ‘ Let us march against Philip, let us conquer or die,’ still could not save them from his machinations. Cicero, too, was reserved for a time when his mighty eloquence should exert itself against the plots of the traitors and parricides of his country. Cicero, as well as Demosthenes, flourished at a time when Rome had acquired her greatest power, and held her wide sway over half the known world ; and he, too, lived to see his native land under the dominion of a tyrant.

“ The eloquence of each of these great orators, was most powerful and excellent ; but it showed itself, in the two cases, in an entirely different manner, and was wholly opposite in its character. What a contrast does the vehemence, conciseness, and strength of Demosthenes form with the diffuse and flowery style of the

Roman orator ! The motives of Demosthenes also seem to be purer, and more disinterested. The noble and ardent devotion to his country which appears in his conduct, strikes us with admiration ; but, in the orations of Cicero, we are often dissatisfied, not to say disgusted, with the egotism and self-flattery in which he frequently indulges. But this may perhaps be attributed to the manners of the higher orders of the Romans of that age. They seldom failed to give themselves, on every occasion, all the honor of any great action, which they might have achieved.

“ It is probable that the eminence of each of these orators is, in part at least, to be ascribed to the peculiar taste of the times in which they severally lived. If Cicero had addressed the assemblies of the Athenians, and Demosthenes had taken the place of Cicero in the Roman Forum, I doubt whether either would have effected much by his eloquence, or risen high above the rank of common orators. Nothing could have been more effectual than the fire and vehemence of Demosthenes, to arouse the passions of such a mixed and fickle multitude as the lower orders of the Athenians then were ; but it would have ill-suited a tribunal of Roman judges, who, to convince their sound judgments and firm minds, required such an orator as Cicero, who brought forward, at first, self-evident and indisputable arguments as the foundations of his plea, and then gradually drew other arguments from these, in accordance with the established principles of logic, until he arrived at a conclusion which no arguments could shake. The difference between them is, that Demosthenes moved the passions of his hearers, but Cicero appealed to their judgments and convinced their understandings.

If Cicero had lived among the Athenians, he could not well have convinced their reason, because they had little or no reason to convince, whereas Demosthenes, on the other hand, would have found it difficult to influence the Roman Senate, consisting, as it did, of men who would not suffer their passions to overcome their judgment. It is a little remarkable, that, although both of these orators displayed such noble patriotism in arousing their countrymen to maintain their liberties inviolate, yet neither of them tested his zeal for his country by fighting for her. Demosthenes fixed an indelible stain on his character by his base flight at Cheronea, and Cicero, though he never disgraced himself thus, used no other weapons against Cataline and his accomplices than those of speech, but delegated to his colleague, Anthony, the command of the army against the conspirators.

“Cicero had the advantage over Demosthenes in his power of varying his style of speaking. The orations of Demosthenes were always stern and harsh, and cuttingly satirical against Philip; but Cicero could at one time make his style easy and flowing, and full of flattery, when he spoke in the presence of Cæsar; but his satire is nearly equal to that of Demosthenes when he speaks against the traitors of his country. For example, what a difference in style can be perceived between his oration for the poet Archias, and his philippics against Anthony and Cataline! On the whole, I think the merits of these two orators nearly equal, and entitle them to the same niche in the temple of fame.”

In March, 1833, Mason finished the review of the *Eneid*, and executed, with much spirit and taste, the following translation:

THE DEATH OF TURNUS.

“Meanwhile Eneas, watching close his foe,
Lifts high his spear, to Turnus boding woe,
And hurls it from afar. The weapon sped,
Nor could the flight of swift-shot rocks exceed,
Or thunderbolts of Jove. The fatal spear
Like blackening tempest flew, with ruin dire,
Pierced through his armor and his seven-fold shield,
And then transfix’d his thigh. Now forced to yield,
With bended knee to earth great Turnus falls,
And groans are heard from the Rutulian walls;
The mountains wail with sorrow at the wound,
And all the groves with Turnus’ fate resound.
Now low and prostrate, with beseeching eyes,
And stretching forth his hand at length he cries,
‘Tis death I have deserved, and now await,
Use thy good fortune—triumph in my fate;
But if thou carest for a parent’s tears,
If thou didst e’er regard thy father’s years,
O pity Daunus, spare my aged sire.
Or if my death thou seek’st with burning ire,
My lifeless body to my friends restore;
I own thee victor, and confess thy power.
My fall the Ausonians see; to thee I give
My spouse Lacinia; only let me live.’
In deep suspense stands great Eneas now,
Restrains his fury, and withholds the blow,
The words of Turnus move his inmost breast,
His bosom is with swelling sorrow pressed.
At length unto his searching eyes appear,
The belt and girdle worn by Pallas dear,
Whom Turnus conquered on the martial plain,
And wore these fatal trophies of the slain.

He fired with anger at the well-known sight,
 Thus fiercely spoke while rage his words indite.
 'And dost thou hope my just revenge to shun,
 Clad in the spoils of my adopted son?
 But Pallas, Pallas, gives this fatal blow,
 And sends thy spirit to the realms below.'
 Thus having said, he gave the deadly wound;
 Forth flows the purple stream upon the ground.
 Now o'er his limbs a deadly chill is spread,
 His scornful spirit sinks among the dead."

Were there less poetical excellence in these translations than we can safely accord to them, we should still regard the exercise itself, of translating Latin or Greek poetry into English verse, as highly useful to the schoolboy. It makes him scan with closer attention the exact shade of thought in the original; it makes him more sensible of the beauties of his author, improves his taste, and refines his language. Many of these advantages are secured to the learner even where the performance is, like the foregoing, rather a paraphrase than a strict translation. I have never learned the reason why this practice, so common in the old English schools, is so generally discontinued at the present day.

In November, 1833, Mason again returned to Ellington, after a vacation spent chiefly in Litchfield and its vicinity. He made a short visit to Washington, the place of his nativity, and seems to have been charmed with the reminiscences of his infant years. In a letter to Mrs. Turner, he says, "It was delightful to see the well-known places of my earliest days. These lines often occurred to me—

**'How dear to my heart are the scenes of my childhood
When fond recollection presents them to view !'**

I went to my father's house, and wandered all over the woods I used to play in, and I picked several apples from a tree that father planted for me before I went to the South. You wish me to send you some poetry. I have none worth sending."

In obedience, however, to his aunt's wishes, he annexes an acrostic on a female friend ; but he evidently set a low value on his poetical talents, for he adds, "I suspect that what little genius I ever had for poetry has nearly forsaken me ; besides, I have very little time for it." Indeed, it is evident that his love of mathematical problems, in the solution of which he took great delight, began to predominate over every other exercise of his faculties, although he continued to write acrostics to oblige his friends.

In a letter to Mrs. Turner, dated Feb. 26, 1834, he writes thus : "I learned from S. that you intended to send me a bundle with some cloth, and that you would enclose 'Salathiel' and a letter ; and as you promised last term to send 'Salathiel' speedily, I supposed it was coming at last sure enough. But a day or two ago the expected box came, and in it were found the cloth, and sundry other things. Now, to be sure, aunt, I cannot blame you at all, but I must confess I felt considerably disappointed at not finding either Salathiel or the letter. As to the Library of Useful Knowledge, which I have wished for so long, I suppose I must wait for this at least till I get into college, if not much longer."

* Of all the books to which Mason had access in his childhood, no one seems to have engrossed so much of his affections

I thank you very much for the cloth, as it is much needed. I should have been almost ashamed to go to Hartford next vacation in such clothes as I have." An account which he had a short time before rendered to his aunt of the state of his wardrobe shows that his supply of clothing was exceedingly scanty, owing to the limited means of his father ; but still he expresses a cheerful acquiescence in his narrow accommodations, and ever afterwards preferred extreme simplicity in his apparel. The letter proceeds : " You asked me to send you some poetry. I have no poetry, but I have written a parcel of rhymes, a sample of which I send you, hoping that they may at least have the honor of being consigned to the flames by your hand.

THE ITALIAN'S SONG TO HIS LOVER.

" The moonlight is glimmering far down the broad lake,
And her silvery radiance streams o'er the wave,
Then come, my fair lady, my pleasure partake,
And sail over with me to yonder bright cave ;
For there pearls and gay sea-shells lie thick on the strand,
Which the billows wash up on the glittering sand ;
With them, O my loved one, thy hair will I deck,
Thy raven-black tresses and beautiful neck.

as the Library of Useful Knowledge. The numbers he read were chiefly those on scientific subjects, and, in fact, constituted his first introduction to accurate scientific and philosophical investigation. If they did not *create* his taste for such subjects, they at least were the means of its first development. Nor does he form a solitary example of the kind. Several other instances have come under my observation, where distinguished scholars have testified that their first taste for scientific pursuits was inspired by reading the Library of Useful Knowledge.

Now, now the swift boat glides away from the shore,
 And the glittering water-drops fall from the oar,
 Fast, fast the dim bank is receding from sight,
 While the lamps from yon city diffuse their faint light;
 And the sounds of soft music fall on the rapt ear,
 Sweet as though they were warbled from far distant
 sphere,

Or ~~sc~~phs were singing amidst the dim air
 'To watch o'er thee, my angel, and keep thee from fear.
 Now they swell on the breeze, 'tis the sound of the horn,
 How enchanting a strain o'er the waters is borne !
 But see ! the red tempest frowns dark from the south,
 The volcano's dun fires dart fierce from its mouth ;
 Then home let us haste ere the whirlwind shall rave,
 And the deep shall o'erwhelm us beneath the green wave."

The straitened pecuniary circumstances of the Rev. Mr. Mason, made it inconvenient for him any longer to support his son abroad. Our young friend, therefore, returned to Nantucket in the spring of 1834, and re-entered the school there in the capacity of assistant teacher.

To Mrs. Turner.

"Nantucket, Sept. 1834.

"MY DEAR AUNT—

"I am now busily engaged during the day in the school, and like the employment pretty well, though I had rather be a scholar than a teacher. I have begun a course of History, and have finished the first volume of Hume, writing a compendium of all I read.

"I have written no poetry since I left Ellington, except an acrostic for a man who wished one for his wife, and a few others at the request of friends. As Nan-

tucket is so destitute of fountains and running waters, I can find here no Castalian spring for the accommodation of the Muses. If, however, I shall be so lucky as to find one, I will write an acrostic for you by next letter. To tell the truth, I don't think Nantucket ever has or ever will produce a Milton, nor indeed a Percival, except it be a Quaker of that name in town, who keeps a candy shop, and whose only Castalian fountains are his bottles of lemon syrup.

“A week or two ago, we had an exhibition, in which I had five parts to act. We had been preparing for it by evening exercises in declamation, having some time before formed a ‘Ciceronian Speaking Society’ among ourselves, principally for this very purpose. The exhibition consisted of a few single pieces, but for the most part of dramas and dialogues, and occupied two evenings, on each of which we had a select audience of about three hundred, who appeared to be extremely well satisfied with the performances.”

Among his recreations at this period, a favorite one was the construction and working of a small printing-press, where he printed his poems and other compositions. I have before me a proof-sheet taken off from this press, which is executed with correctness and good taste as far as could be done with old types. It is a specimen of one of his acrostics.

THE SUMMER EVENING.

“Entranced by those harmonious sounds upborne,
Light murmurs stealing on the cool night breeze,
In rapt suspense I hear the mellow horn,
Zephyrs the while their music breathe till morn.

And sounds of festive mirth float o'er the trees.
Just rising is the moon whose form we hail.
Enrobed in light majestic, beauteous, pure,
Now she o'ertops the trees ; her beams so pale
Kindle with silver light the lovely vale,
So late in darkness and in gloom obscure.

To such a scene our minds will oft return,
Oft when bleak winter spreads his icy chain,
Binding with ruthless hand and visage stern
Each tree and shrub ;—then memory seems to mourn,
Yearning for summer skies and moons again."

On leaving Ellington, Mason had most earnestly desired to visit his friends at Richmond ; but his father thought it not best, and he acquiesced in the most dutiful spirit. Towards the close of the year, an express invitation from Mrs. Turner to come and assist her in her school, led him to look again with longing eyes towards this home of his childhood. The state of his feelings will be seen by the following letter.

To Mrs. Turner.

" Nantucket, Dec. 25, 1834.

" MY DEAR AUNT—

" I received your letter of the 5th instant, last Saturday, but have delayed answering it until now, that father might have time to consider your proposal. Father, I believe, intends that I shall not go to Virginia this winter, as the passage by land is too expensive and too long to travel alone, and the navigation is bad and unpleasant, and unsafe at this season of the year ; but as he expects to fill up the sheet, he will say more on this subject in his own letter. As for myself, I should like the plan very much, as it would be far more agree-

able to me to do all I can to help you, than to assist one to whom I stand under less obligations, and for other reasons which it would be superfluous to mention. But if, on the whole, it is best that the plan should be given up, at least for the winter, I am willing to acquiesce. Perhaps next spring, a more favorable time will occur for the journey; or I might, I suppose, go from here to New-York, and thence to Richmond, by the packet lines, which run between the two places, in which case the expense would be but little. However, I do not know that it would be best at present. As the year has almost closed, I will send you, as a new year's gift, the acrostic which you say I had promised before.

AN ACROSTIC.

Heaven's wintry canopy covers our sphere,
 And the four sister seasons have circled the year;
 Returns cold December, with snows and with storms,
 Repelling his efforts, the glowing fire warms.
 I love thee bleak winter! for with thee has come,
 Each fireside enjoyment and pleasure of home.
 Then Christmas and New Year with gladness invite,
 Bright smiles for good wishes and mutual delight;
 'Twill not be unvalued, with many a friend,
 Upon this glad day *my* good wishes to send.
 Remote though I may be by distance of place,
 No seas can restrain from the heart's warm embrace.
 Each member of our happy circle, sincere,
 Renews the kind wish for a Happy New Year."

From Rev. Mr. Mason's letter appended to the foregoing, we may infer that he deemed it important that his son should remain at home, that he might receive from parental guidance such assistance as he seemed

to him to require, "before he could possess the great desideratum, a well-balanced mind."

His interest in the stars was manifested, at this period, by the following lines on the Pleiades, which appear to me to constitute one of the best of his early poetical effusions.

AN ENIGMA.

"'Twas on creation's radiant morn,
We sisters to existence sprung,
When darkness fled and light was born,
And chaos far away was flung.

And when the glorious work was done,
The sons of Heaven, with new delight,
Join with us in the choral song,
And in the hymn of praise unite.

And if our number you would know,
Go count the days that passed before
Creation's six-fold work below,
And rest that followed it, was o'er.

We've seen the mightiest empires fall,
We've seen all human grandeur fade,
But ah! the change that withers all
On us his powerful hand hath laid.

For since our bright harmonious choir,
Have seen the dawning light of day,
One of our number is no more,
The loveliest one hath passed away.

Yet we expect the time will come,
When our loved one we shall regain,
And still we hope to welcome home,
The long lost wanderer again."

His collection of juvenile poems, copied and arranged in a book as before mentioned, ends with a piece much more elaborate than the rest, and in a style quite unlike the others. It indicates an improvement corresponding to his advancement in years and mental cultivation.

THE CONVENTION OF THE FISHES.

“ The Spring, soft-breathing Spring, had loosed
 The icy bonds of New York coast,
 And joyous in the sunny beam
 Of May to flow, the waters gleam
 With radiance as they gaily ride,
 Or round Manhattan island glide.
 The finny tenants of the main,
 Now mingle in the wave again,
 Old friends from every quarter meet,
 From ocean, stream, and rivulet,
 Disporting in the silver flood,
 Or seeking where to find their food.
 Some from the Sound’s capacious mouth,
 And some from the dark heaving South,
 Where ocean billows inward pour,
 And dash with never-ceasing roar :
 Some from majestic Hudson came,
 Others from dark Passaic’s stream,
 And every rill that skirts the wave,
 Some tribute to the assembly gave,
 And here and there, around the bay,
 The different groups reclining lay.

“ Near where Columbia’s banner waves,
 Bright o’er the rolling surge which laves

The Battery's base, and loftily
Its glittering unfurled star-gems fly,
One party many a fathom lay
Beneath the radiant light of day.
A sparry cave these rovers found,
With sea-shells thickly scattered round.
But whence did they receive their light ?
Or met they in the gloom of night ?
O no, the phosphorescent shells
Stood thickly round as sentinels :
They hung from every branch above,
Of crystal spar or coral grove :
So many ocean lamps there shone,
The cave was bright as the sun at noon.

“ It was a wide and ample hall,
Of coral was its snow-white wall,
And twining sea-weed decked its side,
Through which the roving fishes glide : .
It seemed that fairy fingers wrought
In ocean bed so fair a grot,
And sea-nymphs their rich treasures brought.

“ Now mutual greetings pass around,
As some old friend by chance is found,
They all the kindly joy partake,
With each to exchange the hearty shake.
We'll leave them to their social chat,
To talk of this and then of that,
The near approach of one to mark—
Ah 'tis an old friend, brave Sir Shark,
Who poising o'er the throng beneath
With courtly smile and well-brushed teeth,
Begins—‘ You all have heard my name,
As from dark Afric's coast I came,

Where sporting on the tainted wave,
I feed upon the negro slave,
That in some crowded vessel's wake,
The desperate plunge has dared to take
Headlong beneath the briny surge,
To free him from the oppressor's scourge.
Now one thing is against my wish—
But who comes here?—The pilot-fish—
What news bring you? Come, Sir, explain'—
'Why, hark, Ladies and Gentlemen,'
Said he, 'I come direct, full sail,
From his high majesty, King Whale.
He's sorry to be so delayed,
But he is mightily afraid
He cannot through the Narrows pass
Because of his unwieldy mass.
'Twas for that reason that I told him,
That New York bay could scarcely hold him.'
'Well, how's his Highness' health?' said one.
'While one day basking in the sun,
A rascal whaler from Nantucket
Happened to see his back and struck it,
And ever since he's had no lack
Of pains rheumatic in his back;
And last year coasting Norway's shore,
He heard too near the Maelstrom's roar,
And found himself fast wheeling round,
Towards the eddying gulf profound;
But as he circled still more near,
And almost overcome by fear,
Struggling his utmost to get free,
At last escaped to calmer sea,

And vowed he never more would roam
So far from his dear native home.'

The porpoise now came tumbling in,
With each old friend to shake a fin.
Says he, 'I am extremely sorry
To frighten you by such a hurry,
But really an animal
I know not by what name to call,
Is coming to us from the ocean'—
Up jumps the cod—'I make a motion
To send one that is not apt to loiter,
The flying-fish, to reconnoitre.'
'Agreed'—then swiftly through the water,
On either side he cleaves the wave,
And leaves the bright illumined cave.
'Who can he be?' exclaimed the shad,
'I fear he comes on errand bad.'
'It may be,' said the Mackerel,
'Another message from King Whale.'
The Salmon rose;—'I think,' said he,
'Some steamboat from the southern sea
Has scared our porpoise half to death,
And put his worship out of breath.'
Just then the flying-fish came back,
As if a shark was in his track. ,
'Fly, fly,' cried he, in wild dismay,
'The great *Sea-Serpent's* in the bay,
And rushing on so fast he comes,
The water all around him foams.'
'Stay,' said the dolphin, 'not so fast,
He's distant half a mile at least.
In order good let us adjourn.
In Autumn we will all return,

To meet each other here again'—
He ceased ;—he saw he spoke in vain,
For half were gone ; he followed too,
And soon regained his sea of blue.
The serpent came, but found them fled,
And back to ocean wave he sped."

A "Farewell to Nantucket," already noticed, (see page 50,) concluded his lucubrations at this favorite residence. The Rev. Mr. Mason's labors at Nantucket were more arduous than he could sustain, and he was dismissed from his people with much uncertainty hanging over him and his family, not only in respect to their future prospects, but even as to their immediate support. Not long afterwards he obtained a temporary settlement at Collinsville, a pleasant manufacturing village on Farmington River, and to this place removed his family. Porter spent the ensuing summer with his friends in Richmond.

CHAPTER III.

FRESHMAN YEAR AT COLLEGE.

Enters Yale College—Indications of superior mathematical powers—Taste for astronomy—First impressions of college-life—commencement of telescopic observations—Symptoms of consumption—Solutions of "Prize Problems"—Rapid progress in practical astronomy.

AT the commencement at Yale College in August, 1835, young Mason presented himself for examination as a candidate for the Freshman class. I well remember his appearance at that time, and the impression he made on me. He was now in his seventeenth year, but his figure, complexion, and whole air, were those of a child of fourteen, being slender in person, complexion pale, voice soft, and whole appearance very juvenile. I was immediately struck with the superiority of his mathematical powers and attainments, from the full and luminous explanations he gave of the principles of arithmetical rules, and from the ready and correct solutions he furnished of problems. I was uncommonly impressed with his adroitness in extracting roots, and in explaining the reason of each step of the process. Even in extracting the cube root, he required no figuring, but soon after a case was proposed, he gave the answer by a process purely mental. I remember mentioning to the gentleman associated with me in the examination, that that boy was, or would make, a first-rate mathematician!

The first notice I had of his taste for astronomy, was one evening when a small party of students of the senior class, met under my direction to look for Halley's comet, with a small telescope. It had already been seen in the large college telescope, (which had afforded to Professor Loomis and myself the first view that was obtained of that remarkable body on this side the Atlantic,) but the object was now to find it by the aid of a small refractor. Mason obtained permission to be present, and excited much notice by his familiarity with the stars.

His first impressions of college-life may be learned from the following letter :

To Mrs. H. B. Turner.

"Yale College, Nov. 17, 1835.

"MY DEAR AUNT—

"Your letter of the 15th reached me to-day. I was very much gratified to receive it, and, as in duty bound, acknowledge myself justly subject to its censure. If the hurry, and whirl, and bustle of first entering college, and becoming initiated into its various duties, and getting accustomed to its everlasting round and regular routine, had not taken off my thoughts much more than they ought to have done from my Richmond friends, you would have had a letter from me before now. But time passes here at college on his swiftest wings; days are like hours, and it seems hardly a week since I entered. Without calculating by the rules of arithmetic the time that has passed, I acknowledge it is time to turn off a few sheets to those who take so kind an interest in my welfare; but when I take the almanac, and count up the number of weeks that have passed,

I am almost loth to write at all, for shame that I have neglected you so long. To philosophize a little, I can account for this rapid flight of time only on this principle, that we distinguish one day from another only by their variety, and by the different occurrences which happen on different days. But when each day furnishes the same routine, with nothing to distinguish it from other days, the whole seem fewer and compressed into a shorter space."

After giving a detailed account of his studies and describing his various college adventures, he adds :

"Astronomy is still a favorite study with me. I have a telescope now in my room. It is the property of a classmate of mine, named Smith, and I have the free use of it. The telescope at Judge C.'s was a mere shadow to this. Through that, Jupiter appeared but little bigger than a point ; through this it appears almost as large as the full moon. The belts on his surface are easily distinguished, as well as his moons, their eclipses, their shadows on his surface, &c. Every time I make observations upon him, I set down, on a small card, Jupiter and his satellites, according to their respective places and magnitudes, and prick them through like those cards in Urania's Mirror. Also I mark the place of Jupiter with regard to the surrounding stars so as to trace his path through the heavens.* I have been looking for Juno, which, in common with the Asteroids, requires a much better telescope than I have ever had before to distinguish it from a star by its disk, but I have not

* These cards, now in my possession, are most beautifully executed.

yet found it, owing to its being now so near the horizon. If I chose to sit up late enough for her to rise higher, I suppose I could see her. The planet Herschel also, which appears in the evening, I have been looking for, and hope soon to find. All the other planets are so near the Sun, that they can be seen only in the morning, just before the Sun rises, a position which is very unfavorable for observation. Saturn, indeed, is sufficiently in advance of the Sun to be seen; and when I can muster resolution enough to get up some cold, clear morning, I hope to see him. In two or three months, the times of the planets' rising will accommodate themselves better to my times of setting.

"This telescope is very powerful* when applied to the stars. The double star, Castor in Gemini, which you know requires telescopes of a high power to separate it, seen through this telescope, presents two stars very close together, one red and the other green. The Nebula in Orion, also, as seen through it, presents a singular mass of light, interspersed with stars here and there, one of which is sextuple, a very remarkable star. I have been able to count four only of these; the other two can be seen only in the clearest nights, and most favorable positions.

"Nov. 19.—Since writing the above, I have been favored with a most magnificent exhibition, which exceeded in grandeur any thing I have ever witnessed. Soon after twilight there was a very fine Aurora Borealis, very splendid and uncommon. A broad band of light stretched over the heavens from east to west. All

* He speaks in reference to such instruments as he had used before.

south of the band was darkness, all north of it was illuminated, though not so bright as the dividing band. But this was scarcely worth looking at in comparison with what followed. I was out last night showing Jupiter's belts, &c. to one of the students, and had set down my observations and was just going to put up the telescope, (it was about ten minutes of eleven,) when suddenly a deep red glow appeared in the east, directly under Jupiter. We ran out into the open space: it spread rapidly, and in a few minutes the whole horizon from the east by way of the north, clear round to the west, was lighted up with brilliant white, driving, as it were, a broad band of red before it upward towards the zenith. I gave the alarm, ('Heads out,') and it spread very rapidly, and in less than ten minutes, half the college were out on the open space, viewing the grand and magnificent exhibition. However, I will not attempt to describe it, as I suppose you will see the descriptions in the papers, and perhaps you have seen it yourself. I doubt very much, however, if it was seen in such grandeur at the South as it was here. In the zenith it glowed with intensely deep red, but as it proceeded further south it grew white.

"I had the good fortune to see Saturn this morning, with his ring and some of his satellites, two or three of them, but he was much too near the horizon to be well seen. I have much more to tell you about college affairs and the debating societies, two of which I have joined. I am also reading the Life of Newton. As to the 'flute,' I hardly think I have sufficient taste for music to warrant the expense."—He concludes this long letter by various inquiries after his Richmond friends.

We have here an account of Mason's first entrance upon astronomical observations, and clearly recognize the kindlings of that zeal which from this time burned with an intensity constantly increasing until it consumed life itself. Instead of the transient and superficial views which most persons are satisfied to take, when they first have access to a large telescope, we see him exploring at once all the phenomena of Jupiter—his belts—his moons, with their eclipses and the shadows they cast on their primaries. With great delicacy he marks the exact position of each body observed, and, if it has motions, delineates the precise path among the stars. The more hidden objects of astronomy are immediately sought for, as the Asteroids, Double Stars, and Nebulæ; and we find only a day or two intervening before his resolution served him to rise in a cold morning, before day, to enjoy the luxurious view of the system of Saturn. This was the beginning of a course of night watchings which speedily terminated his earthly career.

The Aurora Borealis, which he describes with so much enthusiasm, was one of the most splendid that occurred during the remarkable visitation of this phenomenon, which commenced with August, 1827, and has not yet perhaps entirely ceased. The period when Mason entered the field of observation, was a favored one in respect to those magnificent exhibitions, which are not common to every age, but return only after long intervals, are repeated for a few years, (as from twelve to twenty,) and then disappear again for many years. Such displays of the Aurora Borealis as we have witnessed for a few years past, had not been seen before since the period of the old French and the Revolution-

ary war, when, as we are informed by very aged people, similar exhibitions were witnessed.*

In this letter, also, Mason first makes mention of his classmate, Mr. Hamilton L. Smith, who had loaned him the large telescope with which he was making his astronomical observations. Mr. Smith had imbibed a strong interest in the construction and use of telescopes before he came to college, and soon after he became a member of the institution, he purchased one of Holcomb's reflectors, which was the telescope above mentioned. From the time of their first acquaintance Smith and Mason formed an attachment, which, nourished by congenial tastes, and strengthened by a kindred enthusiasm, grew into the closest intimacy. Mr. Smith still survives, and affords promise of much excellence in this exalted pursuit. He has favored me with his "Reminiscences" of Mason, which I shall transcribe in his own words.

"The first year of my residence at college, I boarded in Commons. Mason sat directly opposite to me, at the same table. One evening, at tea, I was conversing on the subject of astronomy with a classmate who sat near me, and invited him to come up to my room, and look at the moon, then in quadrature, (the most favorable position for seeing its mountains and valleys,) through a new telescope I had just received. This was the six feet reflector purchased of Mr. Holcomb. At the mention of 'telescope,' I saw Mason bend and listen eagerly. He then modestly requested permission to come to my room and see it. This is the first time

* See various accounts of the Aurora Borealis by the writer of this Memoir, and others, in the American Journal of Science.

we had ever spoken to each other beyond the civilities of the table. I then asked him if he had ever looked through a telescope. He said he had not, but had seen a large spy-glass, mounted upon a stand, which would show Jupiter's moons. Thus commenced an intimacy which lasted till his death. As the place where I roomed was not well fitted for telescopic observations, since we were obliged to carry the instrument into the street, where we were much annoyed by spectators, Mason took it to his room, (81 N. M.,) and as soon as it became still and sufficiently dark, we used to place it upon the platform over the portico of the chapel, where we were completely removed from observation and intrusion. Here we commenced observations on the easier Double Stars, not accomplishing any thing, however, of much consequence. Through the politeness of Doctor Taylor, the window of whose room looked out upon the platform, we were allowed to place the telescope in his closet, after using it, and thus were completely at liberty to observe without molestation."

In the winter vacation of January, 1836, Mason went to Collinsville to his father's, and seems to have gained much vigor by the healthful exercises of the country. When he returned to college, he represents the kind of life as highly agreeable, and appears to have been as happy as he could be, deprived as he was of his beloved telescope, which Smith had carried home with him, to New London, and did not bring back again until spring. This was fortunate for Mason, for soon after the commencement of the term, he was seized with a severe cold attended with symptoms of those pulmonary affections which at last proved fatal to him. Had he re-

sumed his nocturnal observations at this time, the period of his labors would probably have been abridged.

To Mrs. H. B. Turner.

"Yale College, Feb. 2d, 1836.

"DEAR AUNT—

"Your letter of the 24th reached me a week or ten days ago, and grateful was I to receive so large a share of that time and attention which can so ill be spared from your school and other duties. If in addition to the pressure of these, you have to go to your school in such walking as we have here, I can sympathize with you, for New Haven is well-nigh flooded. Two weeks since, the weather changed from severe cold to quite mild, and has continued so ever since, and it is now one continual thaw. You may imagine what are the consequences of the weather and walking, upon the students. Immediately after the change, I took a severe cold in my head, which soon descended to my lungs and became very troublesome, and confined me to my room for some time."

We have here decided indications of those pulmonary tendencies which developed themselves so fully afterwards. That season of the year, when a thaw succeeds to dry cold weather is the most trying of any to those who are predisposed to affections of the lungs. The extreme humidity of the atmosphere, and the sickly rays of a warm sun, while the feet are immersed in cold snow-water, present a combination of circumstances the most unfavorable to invalids of this class, and every year they seal the fate of numbers of both sexes. It is essential to such persons, during these periods, to remain within doors as much as possible, in a room kept dry

and warm by a stove ; and if they are compelled to go abroad, they should use every precaution to keep their persons dry, especially the feet.

Mrs. Turner, aware of the predisposition of her nephew to pulmonary affections, was importunate with him to adopt salutary rules for the preservation of his health. But on this point he seems, for one usually so amiable and so obedient to the wishes of his friends and guardians, to have been unaccountably perverse. In the present letter he expresses himself on this point as follows : " As to your queries, or rather, kind solicitude about my colds, you and I always took different sides on the subject. I always was for consulting the feelings entirely, and paying but little regard to the exposure ; and thus, during the whole winter, until last week, though I have been out in very cold nights till late, with cold feet, and often had them wet, and let them remain so without drying them, I never experienced the slightest inconvenience. But these last two or three weeks, I have not been able to star-gaze, and I took more precautions than usual, and yet I caught the first cold I have had this winter. This seems to favor my side. I do not pretend to say that I caught cold in consequence of taking precautions, but only that freedom from colds does not depend upon them. Now I can almost imagine I hear you say, ' Ah well ! the child will not listen to reason ; it is of no use to argue with him.' "—These notions that his danger of pulmonary affections was not increased by any exposures he might encounter of cold or wet, or night-air, he carried with him to the last.

On the 13th of March he writes again to his aunt, representing himself as intensely occupied in his studies,

being engaged at that time, in addition to his usual lessons, with the solution of the "Prize Problems." These are a collection of difficult Algebraic problems, proposed to competitors of the Freshman class, intended to test very fully their mathematical powers as well as their acquaintance with the science of Algebra in particular. Similar problems, in the more advanced branches of Mathematics, are at the same time proposed to the Sophomore class. Mason delighted in exercises of this kind, and soon finished his solutions. The problems were twelve in number, some of them of the more difficult class; but they were solved with great elegance, and many of them by several different methods. He also solved, as he informed me, some if not all the problems proposed to the Sophomore class; for although they related to branches of mathematics which he had not yet studied, still he ascertained what principles were required for their solution, looked up these principles, and applied them to the various conditions. His father speaks of his having contracted in early childhood a great fondness for solving arithmetical problems, and a few persons with whom I have been acquainted, have evinced a greater facility or ingenuity in such exercises.

His solutions of the "Freshmen Problems" were rewarded with the first premium, which he shared, however, with his classmate Eldridge, a youth of much genius and intellectual superiority, who descended to the grave before him.

But a talent for the abstractions of mathematics was only one among his various endowments. The Spring vacation which followed, carried him into the country again, and revived his enthusiasm for the beauties of natural scenery. Nor was he less delighted on his re-

turn to college with the combined charms of Nature and art which this city affords peculiarly at that season of the year. All who have been educated at Yale College, will ever remember the charming appearance of the place on their return after the Spring vacation about the first of June. Of this feeling our young friend participated in a high degree. "New Haven (says he in a letter written at this time to Mrs. Turner) is a perfect picture of loveliness at this season of the year. Especially around the college, the air is loaded with fragrance from the beautiful trees and flowering shrubs with which the city is filled. Some one has remarked, 'that any one who can walk under the trees of the college grounds in a bright moonlight evening in June, without feeling the spirit of poetry stirring within him, is no favorite of the Muses.'"

After the Senior's examination in July, as this class retires from college a few weeks before commencement, each of the three lower classes is elevated one degree in college rank. At this period the Freshman feels much exultation at the idea of rising to the dignity of Sophomore, and escaping from that humiliation which formerly, much more than at present, was supposed to belong to the condition of Freshman. These feelings Mason describes in a letter to Mrs. T., dated July 30, 1836.

"Since the Seniors left, we have been dignified with the exalted title of 'Sophomores,' which, however, we pretend not to esteem as any great honor, as we have been accustomed, heretofore, to consider it as degrading to be so entitled, as long as the name applied to another class, with whom we, of course, waged interminable war. But now, by some secret, inexplicable charm,

the name, as we approach it, begins to unfold new beauties ; and, on a closer view, we find it disrobed of that unpleasant exterior which we so disliked and ridiculed, on entering these classic halls."

In the same letter he shows that he had resumed his astronomical studies with more than his wonted enthusiasm. "I am now entering (says he) on a wider field of astronomical research than ever before. With such advantages as I now have, equal to any in America, I may soon expect to prove the late Lunar Hoax* a reality, and revive the terrors of the fabled man, or rather *men* in the moon. Already Saturn's ring, and the dull round of phenomena that our system can afford, are becoming too commonplace. Already, spots on the Sun, eclipses of Jupiter's satellites, and their shadows cast on his disk, and occultations of stars by the Moon, are thrown aside, and I am in full chase after Nebulæ and Double Stars. In short, I am exploring the furthest limits of the universe. And when I think that I have the full use of these advantages when and as long as I please, I laugh to think how I used to long to look through Mr. Ritchie's telescope, and others that are mere toys in the comparison."

* Alluding to the noted hoax which had a little while before been published in New York, respecting certain discoveries in the Moon, said to have been made by Sir John Herschel at the Cape of Good Hope.

CHAPTER IV.

SOPHOMORE YEAR.

Visits his father at Goshen—Love of Nature—Makes a reflecting telescope—Observations with Holcomb's telescope—Observations on the solar spots—Extreme accuracy and beauty of his astronomical drawings—Grateful disposition.

THE Rev. Mr. Mason, after leaving Nantucket, had labored a few months at Collinsville, but had at this period recently taken the pastoral charge of a small parish in the town of Goshen, near Northampton. In the fall vacation of 1836, young Mason went to this place to visit his friends. He found them perched on an eminence in full view of Mount Holyoke. In his approach to this place, his love of natural scenery was peculiarly gratified. "I was delighted (says he) with the beautiful ride along the banks of the Connecticut, especially when I first came in view of the cloud-capt Holyoke. I never saw a mountain-peak shrouded in clouds before, and was very much gratified. In point of scenery I like Northampton better than New Haven. Goshen has a very high situation, as high as the top of Mount Holyoke. We can stand on our door step in a clear morning, and see Northampton down the valley, and the silver line of the Connecticut, and Mount Holyoke."

In this romantic and healthful spot he spent his vacation most pleasantly; but still some symptoms of his pulmonary tendencies developed themselves here, suffi-

cient to excite the apprehensions of his affectionate and watchful aunt, Mrs. Turner, who had seen him on a visit she paid to his father's at this period. To her tender inquiries and urgent solicitations on this subject, betraying anxieties which events have since but too well justified, he replied with his usual air of carelessness about his health, and in a style far less dutiful and respectful than he was wont to address to one whom he regarded with filial affection and reverence.

His reply to his aunt's kind inquiries into the state of his wardrobe, evinces but little concern on that subject, his taste respecting dress being extremely simple, and his apparel restricted to the lowest standard of respectability, partly from his unwillingness to tax his friends, and partly from his desire to appropriate the sums that he might save from such expenditures to astronomical purposes. He tells his aunt, "that he has no cloak, but adds that his old surtout, although the sleeves had become rather short and a little the worse for wear, was fully competent to keep off the attacks of old Boreas. But as his friends had said something about giving him a watch, he wishes to convert all their bounty into that channel, in order that he might have an accurate time-piece for celestial observations."

The conclusion of this letter shows how far removed it was from his imagination that his letters would ever be deemed worthy of the public eye. "I hope (says he) that you do not show my letters to any one, least of all, this. Let the flames have their just tribute, and offer this on Vulcan's altars."

Among the exercises of the Freshman class, translations from the Latin hold a conspicuous place. Among his papers is a neat file, embracing, probably, all that he ever

wrote. They are done with much taste in respect both to style and mechanical execution.

We learn from his friend Smith that soon after Mason had been informed of the progress he had already made in making a small telescope, he entered into the subject with great enthusiasm. Guided by Mudge's *Treatise on Making Speculums for Telescopes*, they procured the raw materials, obtained a mould, and did their casting in their anthracite stove, protracting their labors to a late hour of the night, after the lessons of the day were completed. Re-melting their first compound and pouring it into the mould, they were so fortunate as to procure an excellent cast. In about a week, by employing every moment of time they could get, and laboring alternately, they succeeded in making their tools, and in grinding down the rough casting. They next procured a hone, cemented it to a block of wood, and turned it to a proper shape to fit the guages, and with this commenced giving their speculum the requisite figure. "At length (says Mr. Smith) the momentous time arrived for the polishing. With a degree of trouble and caution we often laughed at afterwards, we formed the polisher of pitch, and set it aside to cool. We were obliged to work chiefly by night, as our college duties required our unremitted efforts during the day. After a hasty supper, therefore, we commenced the labor of polishing. The polishing powder used was the red oxide of iron, and so cautious had we been, that we had sent to New York with directions to procure the finest article at any expense, and we were fortunate in obtaining it. I scarcely need say that we afterwards prepared it for ourselves, and finally laid it aside for *putty*, or the combined oxides of tin and

lead. As the figure of the pitch polisher had altered somewhat in casting, we commenced polishing the metal in the centre first. We worked alternately* from six to ten o'clock, and although the speculum was in part brilliantly polished, it was still almost one fourth of an inch from the edge. This we carefully watched, often measuring it to see how fast we were gaining upon it. Mason and my brother, while I wrought, were stationed on each side of the polisher, all ready, when it became dry and stuck, to breathe upon it and moisten it. About eleven o'clock Mason and my brother retired, and at twelve I broke off, the speculum being now nearly completed. We had already provided a sheet-iron tube, and also an excellent plane mirror. A day or two sufficed to adjust our speculum and mirror, (to give the instrument the form of a Newtonian,) and its performance on land objects encouraged us, but the first night after we were prepared was cloudy. Mason passed the night with me, the earlier part of which (after getting our lessons) was spent in adjusting our eye-pieces and getting all ready for observations. Before daylight Mason and my brother were up. Jupiter was rising in the east, and the full moon shining brightly in the west. I shall never forget the joy with which my brother ran into the room and told me to get up immediately. I was soon with them in front of the house. They had the telescope mounted on a chair, and pointed at Jupiter. It showed the planet beautifully. His disk was sharply

* A brother of Mr. Smith, equally enthusiastic with his brother in his passion for astronomy, was of the party. He died the ensuing winter.

defined, and the belts were black and distinct. Indeed this first mirror I have always considered as one of the best I ever saw. Next night we viewed the double star Castor, 5 Lyræ, &c. We could afterwards detect the companion of Polaris, μ^s Draconis, 11 Monocerotis, and ϵ Bootis.

“This first telescope belonged to me, but we soon afterwards constructed one for Mason, all working at it in the same manner. This was mounted as an Herschelian, and the two instruments were so nearly equal that no difference could be detected.

“Soon after the incidents I have just mentioned, I purchased of Holcomb a larger telescope, viz. 7½ feet focus, and 6½ inches aperture. This was one of the best telescopes I ever saw, and with it we commenced observing the second term of Sophomore year, gradually advancing from the easy Double Stars to the most difficult of Herschel’s catalogue.”

This was the instrument of which Mason gave so enthusiastic an account in his letter to Mrs. Turner, already given. (See page 76.) From that letter it appears that he had made numerous and delicate observations with it even before the end of his Freshman year; and no doubt his taste for the delicate and intricate researches of practical astronomy was greatly fostered by the command of so excellent an instrument. Indeed, the great obligation under which Mr. Holcomb has laid students of astronomy in this country suggests the propriety of introducing some account of his labors in this place.

This ingenious artist has made a great number of similar telescopes since, a few of which have been on a much larger scale than this. Mr. Hol-

comb's telescopes may safely be pronounced the best that were ever made for the price. For one hundred dollars, he furnishes an instrument which affords striking views of the moon and planets, and is adequate to all the purposes of our higher academies, or grammar-schools; while for four hundred dollars he supplies one, which gives magnificent views of the heavens, including the more intricate phenomena of the stars, and suited every way to the wants of our colleges and universities. Although self-taught, and little conversant with telescopes of even the humblest kind, until he made more powerful ones for himself, Mr. Holcomb has carried the manufacture to such a degree of perfection that there is now little occasion to send to Europe for telescopes. The astonishing cheapness of his instruments, also, compared with those of equal quality imported from Europe, puts it in the power of many literary institutions, and even of individuals, to possess themselves of this interesting and noble instrument, who have heretofore considered it beyond their reach. In short, the introduction of Holcomb's telescopes constitutes an era in astronomical science on this side of the Atlantic.

I have been favored with a letter from Mr. Holcomb, giving, at my request, a brief account of the rise and progress of his establishment, which, by permission, I will insert in the Appendix. (See Appendix, Article I.)

As my professional labors are devoted chiefly to the Senior and Junior classes, I had known but little of Mason up to the period of the second term of his Sophomore year. But an incident led to my forming a more intimate acquaintance with him, inspiring me, as

it did, with a high idea of his talents for astronomical research.

In March, 1837, a remarkable cluster of spots appeared on the disk of the Sun; and being prevented, by an imperfect state of health, from making telescopic observations on them, I suggested to young Mason, soon after their appearance on the Sun's limb, to examine them daily, as they moved across the solar disk, and to keep an accurate journal of his observations from day to day, accompanied by drawings, exhibiting the changes of form, magnitude, and the like, which they should exhibit. Soon after the spots had crossed the Sun's disk and passed off at the other limb, Mason brought me his "Journal of Observations on the Solar Spots of March, 1837," accompanied by a magnificent drawing, which, for beauty of penmanship and extreme finish in the delineation of the minutest changes of figure or dimensions in the spots, has never been surpassed by any astronomical drawings with the pen, which I have ever seen. It was done on a large sheet, and exhibited seven views of the clusters, as they varied their appearance from day to day. On the same sheet was delineated a representation of the Sun's disk, with the places occupied successively by the spots. He made, with his own hands, a neat frame of wood, and, in this finished state, he brought it to me along with the copy of his Journal.

I was not more pleased with the beauty of the drawings than astonished on perusing the manuscript, to recognise in one so young such powers both of observation and philosophical reflection. The child-like simplicity of his air, and indeed of his form and features, which still savored much more of the child than of the man, were

in striking contrast with the delicacy of his observations, and the profundity of his reflections. Astronomers will be interested in this earliest production of his pen, and they will require no apology for its insertion, entire, in the Appendix. (See Appendix, Article II.) The original drawings are deposited among the astronomical apparatus of Yale College.

I was so well pleased and satisfied with these observations, that I cherished the idea of accumulating, by his assistance, what appears to be a desideratum in astronomy, a large mass of accurate observations on the solar spots; and I offered him some inducements to engage in this enterprise. He expressed a strong interest in the subject, but declined the proposal on the ground that he could not spare the time from his regular studies. I then suggested that he should not descend to all that minuteness of detail, which characterized his present observations, but only give the principal features of the changes occurring from day to day. He said he had set out on that plan in this case, but found it impossible to satisfy himself short of the highest degree of exactness of which the case was susceptible; and he could not observe or draw in any other way.

The account which Mr. Smith gives of the astronomical labors of Mason, in connection with himself and his brother from the second term of Sophomore year onward, not only evinces the highest degree of enthusiasm, but surprises us with the rapid progress our young friends made in ascending the scale of observations, until they reached the most difficult class known to astronomers. The details of these, as kindly communicated by Mr. Smith, would prove in the highest degree interesting to the practical astronomer, especially

to one just entering with similar ardor upon this alluring pursuit ; but they are too technical to be interesting or even intelligible to the general reader.

Mason passed the spring vacation of 1837 with his friends at Richmond, to whose affectionate attentions he afterwards looked back with the most grateful feelings. Some who are placed in a state of dependence upon the bounty of relations and friends, lose the delicate sense of obligation which such favors are suited to awaken ; but the liveliest gratitude towards all who had ever done this beloved youth the least favors, accompanied him to his dying hour. After his return to college, he addressed to his aunt the following letter :

To Mrs. Harriet B. Turner.

“Yale College, July 15, 1837.

“DEAR AUNT—

“Aunt J. has returned ; I saw her last night for the first time, and she told me, among other news, that you said you had not had a line from me since I left Richmond. I could hardly believe it at first, but as she assured me it was so, I determined to sit down immediately, and remove the opinion of my ingratitude which you must have formed from supposing that I would have so long neglected you. For I assure you I felt unhappy enough last night, as aunt J. had said that you thought very hardly of it, and that you were very unwell when she left you. I hope you do not think that I could purposely neglect my best friends, although I know I am occasionally forgetful about writing to them. But for six or eight weeks ! I could not be so remiss in my duty to you. I certainly wrote to you about two

weeks, possibly three, after I left Richmond, and put the letter into the office. I can hardly believe you have forgotten it; yet as that is possible, I would say, that it contained a brief account of my journey home, and of my obtaining a new and pleasanter room, in the fourth story, together with some abstruse speculations upon the corresponding effects which elevation in the atmosphere produces on elevation of mind, and—indeed in proving such effect to have taken place in regard to my own mind, by a copy of verses, written at the height of thirty-five feet above the ground, and ninety feet above the level of the sea; which proof of elevation of mind I requested you to transfer to Miss H. as the promised ‘Part 2d’ of a former and more *trashy* production from the pen of the same *gifted* author.

“And while I am now at the confessional, I wish to own to you, that I do not think I acted towards you, when I was last in Richmond, in all respects as I ought to have done. There were many little instances of apparent disregard of your feelings, I am afraid; for I once perceived some emotion on your part, which, though at the time I thought it proceeded from an overwrought sensibility, when I reflect upon it, I think with pain was no more than was natural, and to be expected at any appearance of ingratitude from one you had always so kindly and so tenderly cherished. I would not for the world have you feel that I am ungrateful for all your kindness. I wished, indeed, to avoid the formal visits to which your position in society subjects you, which have no charms for me. I would gladly, if I could, have passed my time in your society alone, in reading to you, or in walking into the country, all the time you could spare me; not that I now think I

had a good excuse for withholding myself so much from your society. The thought of it has cost me many a bitter reflection since, *and I feel as if a load were taken off my spirits, in acknowledging my fault,* and in a promise to consult the wishes of my friends more hereafter on any similar occasion.

“It is late, and I am not well. I have a good deal more to say, but bidding you ‘good-night,’ I remain

“Your affectionate nephew,

E. P. MASON.

“An overflowing cup of love and fraternal affection for Mr. C.”

CHAPTER V.

JUNIOR YEAR.

Vacation scenes—Returns to college—Commences a second large telescope—Calculation and observation of a lunar eclipse—Observation of the meteoric shower of November—Privations incurred for his favorite objects—Literary labors—Failure of his pecuniary resources—Simple habits of living—Prospect of losing his education.

THE fall vacation, commencing his Junior year, Mason passed at Northampton with his parents, and took many delightful rambles over Mount Holyoke, and other charming eminences with which that place is signally endowed. These excursions, with the invigorating mountain air, and a temporary respite from that mental toil by day and night which he had endured so long, together with the affectionate intercourse of his family friends, proved exceedingly beneficial to his health, and inspired his friends with the hope that his opening manhood would develop signs of a more vigorous constitution, and of a longer life than they had dared to anticipate. The unsettled state of his father, and his inability to provide fully for the expenses of his son, would have arrested young Mason at this point of his education, had not several kind relatives and friends contributed their generous offerings. These, however, he received as loans, which he earnestly hoped to be able to repay with his first earnings when his education was completed.

In a letter to Mrs. Turner written soon after his return to college, he says, "My telescope is about finished, and I have some idea of selling it, if possible, and by the avails of it, constructing a much larger one; and yet I have a sort of affection for this first product of long toil and skill, that would make me regret parting with it. I am a little in a hurry just at this time—beginning of the term—lessons hard—great eclipse of the Moon on Friday next—have calculated and projected it—am fitting up my telescope for observing it, and regulating the college transit instrument by a series of observations, for obtaining the time accurately."

During the preceding summer my pupils in astronomy, consisting of a select number from the Junior class, had calculated and projected the eclipse of the Moon, which Mason speaks of, but I did not know at the time that he accompanied us in the calculation, as the Sophomore class, to which he belonged, had not yet attended to the requisite preliminary studies. His calculation, however, was not inferior in accuracy to any, and his projection was very neat, although, on my inquiring "if he had a good set of mathematical drawing instruments," he replied, "that he had nothing better than a two foot rule, and an old pair of brass compasses." In a number of the college magazine, the "Yale Literary," published soon after the eclipse, is a report of the observations made on it by Mason and his friends Smith and Stoddard, who were associated with him. Considering the early years and inexperience of the observers, the observations were very creditable to them; and it were desirable that this organ of the students of Yale College, which, from its commencement in February, 1836, to the present time, has been

issued in monthly numbers, and been sustained in a manner that has done credit to the writers and to the college, should present more frequent evidence than it has done of a scientific as well as literary taste in the Institution.

A few of the students who were more particularly interested in the study of astronomy, were selected to aid me in watching the heavens for several nights about the 13th of November, the anniversary of the great meteoric shower of November, 1833. In 1837, Mason was one of this number, and entered into the observations with his usual zeal. Although, on this occasion, our labor and loss of rest were not rewarded with any brilliant exhibition of shooting-stars, yet Mason saw enough to satisfy him of the reality of an extraordinary display of them on the morning of the 13th. In a letter to his aunt written two days after, he says, "It was cold work, but the appearance of an unusual number of meteors was fully proved." On several other occasions he had witnessed the same exhibition in November and August, and never afterwards expressed the least doubt of the fact that such an extraordinary descent of meteors, radiating uniformly in each case, from a fixed point in the heavens, is witnessed at those periods. He was the first, so far as I know, to observe the phenomenon, with due attention, through the telescope, and not long before his death he communicated the result of these observations to his friend Mr. S. C. Walker, of Philadelphia, who has published them in connection with an able article of his own "On Shooting Stars," in the American Philosophical Transactions for 1841. (Appendix, Art. IV.) In order to avail himself of a platform covering the portico of the college chapel,

and accessible from the third story of the building, for telescopic observations, Mason had sought and obtained a room in the same story, in its position and accommodations more ineligible, perhaps, than any one in all the college buildings. In a letter to Mrs. Turner, he gives the following account of his location. "If you want to picture to yourself an agreeable situation, just form an image of mine; softly body it forth with warm fancy's rapturous touch. Imprimis, a room occupied before me by a notoriously dissipated fellow, as likewise a tobacco chewer of the first order,—sheet-iron stove consequently nearly rusted through, and floor delightfully variegated. Secondly, prospect from it—the bricks of North College, with the view of the washroom windows of three students, all at the comfortable distance of eight feet,—both buildings rising high above so as to exclude all but a narrow line of sky—room consequently as dark and shady as any grotto of the nymphs or muses. Thirdly, chimney of such construction that the stove has no draught, employing me an hour every morning in kindling a fire, which can be effected only by keeping all the windows raised during the process of burning about eight or a dozen newspapers, and blowing the rest of the time at the charcoal—I mistake—not *every* morning—every *fourth* morning, I should have said, for I look around and live upon my friends the rest of the time. Thus, in winter, light is to be obtained close at the window, and warmth close by the fire—an indubitable proof that light and heat are not inseparable. In summer, however, when the sun shines hot upon the opposite bricks of North College, heat but not light is afforded in such quantities, as to make it hot enough for a New Zealander. I want to write

more, but I am sitting at 7 o'clock in the morning in my cold room, without a fire, which I have *not* the courage to attempt to kindle."

I well remember visiting this cell while occupied by Mason, and never saw a college-room look more cheerless. Nearly half of it was occupied by his telescope, which by the aid of his neighbors he was accustomed to carry out on the platform on favorable nights for observation. He had limited himself to an extremely scanty supply of furniture, and had not incurred the trouble and expense of scouring off the unseemly pictures which his predecessor had inscribed on the walls with chalk and charcoal, nor, indeed, but partially removed from the floor the other "reliquiæ" to which he alludes in his letter. As he insisted upon remaining in the room, because no other which he could obtain would be so favorable for his astronomical researches, the college joiner was soon put in requisition, and such changes made in the room as rendered it more tolerable.

Near the close of the year 1837, I commenced printing a third edition of my *Introduction to Natural Philosophy*, bestowing upon it a careful revision, and endeavoring by a faithful correction of the proof-sheets to secure the greatest attainable accuracy in the typography. I had, however, but just commenced the work when a serious illness confined me to my room for several weeks. Mason had signified to me at different times his desire of such literary labor as he could perform without prejudice to his studies, and I now proposed to him to aid me in carrying my work through the press. The proof-sheets came out slowly; I read them first while lying in my bed, and after obtaining a second proof, Mason took them, carefully noted any re-

maining typographical errors, reviewed the demonstrations, and repeated the solutions of the problems. Very few errors of the press escaped his vigilant eye, and he suggested some valuable improvements in the solutions and demonstrations. I found, however, that his spirits were, at this period, unusually depressed, and a severe cough had returned, to which he had for some years been occasionally subject. His delicacy in troubling others with his personal trials rendered it difficult for me to ascertain the cause of his depression, and I never understood it fully, until I have now learned from the following letter that by the misfortunes of a friend on whom he had relied for pecuniary aid, he was suddenly brought to contemplate the necessity of leaving college, and perhaps of abandoning his education.

To Mrs. Harriet B. Turner.

"Yale College, March 1, 1838.

"DEAR AUNT—

"I was exceedingly grieved on reading your letter to hear of the reverses of those who have ever given me the kindest assistance, and still more so that uncle B.'s misfortunes have had a serious effect upon his health. I have been prevented for some days by a confinement resulting from a severe cold upon the lungs, from writing to you, which I should otherwise have done immediately. I have, however, nearly recovered, but am still confined to my room. Such a sudden change as has taken place, knowing uncle B.'s prudence and caution, I could hardly have anticipated; and I can only hope that your fears and expectations may prove in part groundless. As far as this change regards myself, I am not very greatly concerned; for what is past

I can never be too grateful ; for what is to come, as far as I know at present, I am to depend upon myself mainly. My plans for the future will rely much on my father's advice, and to him I shall write immediately ; but for my own part, I should decide to remain at college if possible. In the first place, you have very little conception of the loss I sustain by leaving my class at so late a period of the course. My father knows not much about it, but my friends in college would, I know, all tell me that it was best for me to remain, if I could. If I stay away a year, I enter another class, under every disadvantage, without any previous standing to rest upon, while the requisite time is not afforded to gain a standing.

“Although it is rather hard to be burdened with debt at the end of one's college course, yet I esteem it far preferable to leaving at this time. The college bills I think I can dispense with paying, under bonds to pay them from my first earnings after leaving college. I can borrow too, to some extent, under the same obligation. I can earn somewhat during my course to pay for such things as require immediate payment. I am now engaged in assisting Professor Olmsted in revising his Philosophy for the press, for which I receive very good compensation for the time I employ upon it, and which will continue for some time. I had devoted these earnings to my favorite pursuits, but, of course, can think of that no longer. Thus, I think I can manage, with occasional aid from my father, to make my way through college without being reduced to the necessity of leaving, for *necessity* I should consider it, and a severe one. I have little doubt that my father's views would coincide with mine. For your kind offers, it

would be too formal to say merely that I thank you—you know what I would say, without freezing my feelings by transferring them to paper.

“Your affectionate nephew,

E. P. MASON.

“P. S. I assure you it is no fun to be sick in college. I have not had my last two meals brought me at all—the classmate upon whom I depended for them is sick himself, and no one in this entry to whom I can speak belongs to the club.”

His next letter to his aunt affords a very distinct picture of his situation at this time, feeble in health, straitened in his pecuniary means, and uncertain which way to look for aid.

To Mrs. H. B. Turner.

“Yale College, March, 1838.

“DEAR AUNT—

“Spring has fairly set in with us; the birds are already warbling at the first retreat of the snow—would that it could retrieve the misfortunes of friends as readily as it does the ravages of winter.

“I received your letter this morning, and saw by it that you had not yet received mine. I could have wished you had, for you must have thought me guilty of procrastination indeed, to have delayed in a matter of so much importance. I had at the time a severe cold upon the lungs, coughed very much, and for several days after was confined to my room entirely. My headache and dizziness would not allow me to write or think clearly, otherwise I should certainly have allowed no delay. I have now nearly recovered from all its effects, and shall be taught more caution for the future.”

He proceeds next to comply with his aunt's request, by giving her a detailed statement of his debts and necessary expenditures, from which it appears that his habits of living were of the simplest possible kind, and the amount of his expenses less than one half the ordinary average. He then adds: "I hope you will not be concerned about my welfare, as there is no danger that I shall not push ahead in some way or other, by loan, negotiated by either my father or myself. I prefer leaving my debts until I am through college, to lessening them by waiting in the hall,* or keeping a recitation room; not from pride, but because these hindrances would interfere with my studies. I am afraid that in transmitting to me so great a draft, you have robbed yourself of what you need for your own convenience, and in such case I should only feel the heavier at heart for your kindness."

His appearance on the stage at the Junior exhibition, when he spoke an oration, was juvenile, but his pale complexion, and slender figure, contrasted with the justness and energy of his thoughts, rendered him peculiarly interesting. His cheerful air concealed the troubles and embarrassments of his situation, and few understood that his heart almost failed him at the thought, that this happy occasion would probably close his connection with college. Friends who had hitherto contributed to his support, had met with reverses which compelled them to withdraw further aid; and his father found his salary, imperfectly paid as it was, so inadequate to his support, as not only to leave him nothing

* Indigent students were formerly accustomed to attend the tables, and received their board for such service.

for his son, but to force upon him the necessity of an immediate removal to the West, and all his resources were put in requisition to defray the expenses of the undertaking. A few days, therefore, after young Mason had returned home to pass the spring vacation, I received a letter from his father, describing his situation, lamenting his inability to furnish to his son the least aid, and expressing the painful conviction, that he must now be cut short in his education, and retire with him upon a farm in Michigan. Several gentlemen of the faculty, when they became acquainted with these circumstances, engaged to loan the sums necessary to complete his education, and on this expectation he returned to college at the opening of the succeeding term. A generous benefactor, however, an intimate friend of his early years, rendered it unnecessary for Mason to avail himself of the aid thus proffered him.

The feelings with which he passed through these trials, as described in his next letter to Mrs. T., evince the most dutiful spirit to his father, for whose sake, should his services be necessary to him on reaching his new destination, he was ready to forego all the pleasures and advantages he anticipated in the pursuit of knowledge; or, if permitted to complete his college course, he expressed the utmost confidence, that he should soon reimburse those kind friends who had lent him their aid. Respecting his uncle, who had formerly assisted him, but was now suffering under accumulated misfortunes and bodily illness, he says: "I want uncle B. to know that I am amply supplied with the means of continuing in college, and if my health holds good, have very favorable prospects before me. Tell him that I should be extremely sorry if I thought that any

part of his anxiety and mental trouble, arose from the necessary discontinuance of his kind assistance to me. For myself, I feel that I am, as it were, my own man, and fully able by this time to take care of myself ; and I sincerely hope that no needless anxiety for those whom he has hitherto so kindly cherished and supported, will add one drop to the cup of bitterness that is already too full."

The various engagements, infirmities, anxieties, and embarrassments which had pressed upon Mason during the preceding term, had unavoidably withdrawn his attention from astronomy ; but at the beginning of the summer of Junior year, on the first return of that peace of mind so grateful to his feelings, he flew again to his favorite amusements, and prosecuted with new energy and delight his observations on the double stars. At this time he commenced his correspondence with Mr. Holcomb, on the performance of his telescopes compared with the ten feet Refractor of Dollond, belonging to Yale College. His letters prove that his zeal, if subdued for a time, was not extinguished, but was easily rekindled. They would be perused with great interest by the young adventurer in the same delightful field of observation, but are too technical for the general reader. He does not seem, however, to have recovered a perfect state of health, as he confesses to his aunt, although he refrains from any mention of his nocturnal studies, knowing what cautions and rebukes such an intimation would elicit. The death of his uncle, David Burr, Esq., of Richmond, who had been one of his greatest benefactors, happened near this time, and called forth his tenderest expressions of sympathy, affection, and gratitude.

CHAPTER VI.

SENIOR YEAR.

Passes the fall vacation in completing a large telescope—Observations on a great eclipse of the Sun—Picture representing him asleep over his calculations—Resolves to devote his life to astronomy—Estimate of Senior year—Superior performance of his telescope—Smith's great telescope—Devotes himself to chemical experiments—Visit to Litchfield county—Plans for his course of life—Resumes writing poetry—"Night Musings"—"Rosebud"—Variety of his literary and social engagements—desponding season of the college student.

TOWARDS the close of the summer term, Mason's astronomical zeal was quickened by the anticipated pleasure of making observations on the great eclipse of the Sun of September 18th, 1838. With this object in view, he remained at college during two thirds of the fall vacation, devoting his days to mechanical employments connected with the completion of a new telescope, and his preparation for observing the eclipses, and his nights to observations on the stars. In these delightful recreations, so consonant to his taste and genius, he was accompanied by his friend Smith. The free use of the shop of an ingenious mechanic, with any assistance they might require occasionally from the proprietor, made the day pass most pleasantly, while a clear autumnal sky by night, with the use of a large telescope, furnished a still higher repast for the evening. They had regulated the clock by the transit instrument, and Mason had fixed to his telescope a double image mi-

crometer which belonged to the college, and thus every thing was in readiness for the great eclipse. On the preceding day he embraced a private opportunity to write a few lines to Mrs. Turner—"few they must be at present (says he) in spite of my desire to write more. Our vacation of six weeks is more than three fourths gone, and I have been hard at work as a mechanic all the time, and have recruited much in health and spirits." After a few hasty inquiries, he adds: "I have scarcely a moment's time to devote to this letter; to-morrow an eclipse of the Sun occurs, the last of the great series we have had for some years past, nearly annular here, if not quite so. I have been during the whole vacation building a telescope, of between seven and eight feet focal length, and nearly six inches diameter, and fitted with the means of making the most accurate measures of this eclipse, and of taking a great number of measurements during its whole progress. I ought to have a full week more time previous to the eclipse to get my apparatus in the best state of preparation; but as there is no putting off the eclipse, I must do what I can to be prepared to-morrow. You may easily imagine that at such a crisis, time does not go hunting after occupation: in fact, I have a full week's work to get over in some way or other before to-morrow, all of it almost requiring sunshine, or starlight, whereas it has been cloudy three or four days, and promises very fair to be so still. Should it be overcast to-morrow, I shall be saved a deal of trouble and after-calculation; should it be clear, you will no doubt be gratified to know of my success."

On the day of the eclipse, I reached home from a distant journey, about noon, and found our young astro-

nomers agitated between hope and fear,—hope verging on ecstasy in anticipation of the approaching spectacle, and fear lest the clouds which, with some signs of breaking away, still covered the sky should continue, while only an hour or two remained before the eclipse would come on. I encouraged them and cheered them on, upon the principle that “Fortune favors the brave,” and just before the expected moment, the clouds all melted away, and left a glorious scene for the astronomer. The results of these observations were published in the *American Journal of Science*.

I have in my possession an interesting pencil-sketch of Mason, taken by his fellow-laborer Smith. They were together in the observatory till a late hour of the evening, taking observations in preparation for the approaching eclipse. Mason is seated, and with his pencil is reducing his observations on right ascensions. But overcome by excessive watchings, he drops to sleep; and his ingenious and more wakeful companion amused himself by sketching the whole scene, presenting the picture of a child, (as he appeared,) sitting by a large telescope, with a pile of astronomical papers on the table, but the young astronomer sunk into the arms of Morpheus. The contrast between the exalted pursuits indicated by the drapery, and the extreme juvenility of the astronomer, is strikingly enhanced by the attitude of the figure.

Mason was now fairly in love with Practical Astronomy; and having acquired already the difficult art of making observations of refined accuracy, he began to pant after the loftiest heights of astronomy, and to think of nothing less than devoting his life to it. The efforts of the Hon. John Quincy Adams to create a national

observatory had caught his eye, and his soul was fired at the prospect of obtaining at least some humble place in this American Uraniberg. He first intimates such a purpose to Mrs. Turner in a letter dated Oct. 8th, the first addressed to her after entering his Senior year.

"I suppose (says he) the Solar Eclipse of Sept. 18th, was visible and annular with you. I almost envied your situation at the time, for it is the last eclipse of such magnitude we may see for many years. Here the eclipse was not quite annular. I made some very satisfactory observations upon it. During the last vacation I remained at college, I had expected to make a short pedestrian excursion into Litchfield county, but finally gave it up. I was employed most of the time in the construction of a new telescope, which I was fortunate enough to get into a state of sufficient advancement to observe the eclipse. I had attached to it a very excellent micrometer made in London, which fell into my hands a year ago, and with which I was able to make very good observations on the progress of the eclipse."

After enumerating the studies of the year on which he had entered, he adds: "After all, the fancied ease of Senior year consists only in this, that one *can* get through it with much less study than the preceding year if he chooses; but he must be very diligent if he intends to profit much by it. What my prospects in life are, I at present know not, nor do I wish to know. I look forward with strong, and by this time almost unalterable desires to a line of pursuit, which I know, in this country while the demand for what is practical, and moreover of *immediate* and *obvious* utility only exists, must meet with little encouragement. Had I not the

consciousness that in the pursuit of my objects I could bear any adversity or frowns of fortune rather than relinquish them, the discouraging nature of the prospect might shake my constancy, and gradually change the current of my inclinations ; but I think that while many of my views of the future, and castles in the air, will hereafter appear extremely foolish, the great objects of my choice I shall not and cannot forsake. But speculations on what is to come hereafter are premature, and had better be kept to one's self."

By inspecting a file of compositions now before me, I find that those written at this period, indicate that the drift of his mind was towards some high and exalted pursuit for life, and we cannot doubt what pursuit it was that he had in his eye. He began to estimate the value of different motives that excite the human powers, and plainly gives the preference to the love of posthumous fame, over the desire of present applause. The love of praise he considers a corrupting and debasing motive when indulged beyond one's true desert, and cherished for its own sake, as the miser loves his gold and seeks for more, without reference to any benefits which either himself or others will derive from it. While he acknowledges the implied inconsistency of seeking a reward which we can never actually possess, yet there appears to him something noble in the very pursuit, something characteristic of a higher degree of moral dignity than the love of present but temporary praise.

The following essay may be taken as a fair specimen of his manner of writing on such themes as are commonly suggested to the student.

ON THE INFLUENCE EXERTED UPON THE CHARACTER BY
THE CONTEMPLATION OF GREAT OBJECTS.

“There is in the human mind an innate admiration of the grand and sublime ; a feeling kindred to all that is great and noble in the natural and moral world. The exercise of this feeling is no transient emotion, dying as soon as the cause that called it into action has ceased ; but it leaves its impress on the mind, deepened by every renewal of the sentiment, and ripened by habitual association, until it is thoroughly inwoven into the very character.

“The influence of this principle lies, in the moral and intellectual energy with which it clothes the mind in the exercise of its noblest faculties. Man is no passive being, but one that exults in power, physical and intellectual,—in action untiring and eternal. The very contemplation of great objects inspires the desire of their attainment. Long meditation of the profound mysteries of nature prompts to efforts for their investigation. It was the steady direction of the mind of Columbus to the one great subject to which he had consecrated all his powers ; it was the dwelling of thought and imagination on the bright offspring of his own fervid conception, which, through long years of neglect and derision, with indomitable strength of purpose, could launch him on an untried ocean—nay, more, could brave the malice and heartless ingratitude of man.

“For the full apprehension of the sublime, either in the natural or the moral world, refinement and cultivation of mind are essential requisites. The thunders of Niagara meet with no response in the breast of the rude

and illiterate peasant ; the grandeur of the firmament is not reflected from his soul.

“ The scholar who loves to dwell on high and noble objects will seldom feel the pride of intellect, or indulge in self-complacency at his own fancied mental superiority. Conceit is the fault of those who look but half-way up the steep of knowledge. He whose earnest gaze is directed upward to her highest temple, is in no danger of looking backward self-satisfied with what he has already surmounted. In proportion as the soul burns with the true celestial fire, it is conscious of its own inferiority, and is endowed with that unassuming spirit of meek inquiry, which characterizes the genuine philosopher, the true interpreter of nature. While the tide of passion is subdued by its influence, reason is exalted to her rightful supremacy ; the mind is continually urged forward in that career of progressive improvement, which is the brightest feature of its immortality ; in its aspirations after excellence, it strives to assimilate itself to a higher order of beings, to burst the shackles which confine the reason and intellect to the narrow sphere of human knowledge, and with Milton to expatiate in worlds of its own creation. If to this tends all that we here know of greatness, how must the perception of the infinite in space and duration, and in sublimity of moral grandeur, elevate and dignify the mental powers ! With what extended resources, what almost omnipotent power, must the gift of all knowledge, the ability to search out every cause, to trace every relation which subsists in the physical and mental universe, invest man, the future heir of this noble heritage ! Who can set limits to the progress of the human mind ? Man has already extended over the

universe the sceptre of his power. He has weighed in a balance the mighty globe on which he treads ; has realized the mad wish of the prince of Macedon, in actually extending his conquests to other worlds ; he has carried forth the line, and fathomed space ; has investigated the hidden laws and movements of matter at distances at which even thought, the mighty traverser of space, shrinks back in despair. Who can deny that this same irrepressible emanation of the soul may, at some future period, go forth to other worlds, and reveal the laws of mind, and the mysterious conditions of being that prevail in those far-off isles in the abyss of space, to which we are bound by the sympathy of kindred existence ? Whether or not such powers are delegated to the human mind in this state of existence, we may leave it to future generations to unfold, assured that all, except what belongs to Omniscience alone, is man's birthright, which he is destined fully and completely to inherit."

To descant on themes like the foregoing, was consonant with the great purpose of life which our young astronomer was beginning to cherish ; and we shall henceforth find him pursuing it with a singleness and devotion unequalled in one so young, until his spirit "burst the shackles that confined it within this narrow sphere," to expatiate in that world where it "can search out every cause, and trace every relation which subsists in the physical and mental universe."

The next letter to Mrs. Turner has appeared to me one of peculiar interest, evincing the delicate feelings of the heart as well as the successful culture and rapid growth of the understanding :

To Mrs. H. B. Turner.

"Yale College, Nov. 7, 1838.

"DEAR AUNT—

"I received your letter and the accompanying check late last Saturday evening. I am extremely thankful for your kindness, although sometimes I think my friends are almost too kind, and are more in danger of permitting themselves than me to suffer. I did not expect, when at the beginning of the year I determined to remain through Senior year, to go through without many sacrifices; and great economy in my wardrobe was indispensable. By your kindness, I am now furnished with the means of putting it in good condition. Aunt J., too, has been kind enough to aid me very much in my clothing, both by repairing and purchasing, so that I shall not long be without a good supply of clothing for the winter.

"I find that Senior year is not, after all, that fancied time of leisure that it is supposed to be. The time is so split asunder by the numerous lectures, that the intervals are not much more than sufficient to learn the lessons as they ought to be learned, although it is much easier to evade thorough study than in the other three years, on account of their nature.

"I sent you, a short time ago, a notice of the eclipse of this year as observed here, in a leaf of Silliman's Journal of Science. The telescope there spoken of, is a new one that I was building during the last vacation. It is a very fine one, and I wish very much you could see it, and look through it. I have seen with it the division in Saturn's ring, which is an object too delicate to be seen by any but the finest and most perfect even of large telescopes. My fellow-laborer in these pur-

suits, Mr. Smith, has been engaged, during the past summer in the construction of one on a very large scale, which exhibits objects that require much light, such as Nebulæ, and faint double stars, most splendidly. It is probably equal in point of light to any thing in the country.

“ I cannot make this letter as long as usual, or as I could wish, as my time is at present very much occupied in every possible way—so many lectures during the day, and at night I am engaged in exhibiting to the class the heavenly bodies through the college telescope. Professor Olmsted being prevented from doing so by his present state of health, has offered to give me a compensation for acting as his proxy in the case. The 13th of November, too, is coming in two or three days, on which some return of the great shower of '33 is expected, and my hands are full of that, the Professor relying on me to get up and organize a sufficient company in our class, and train them by learning the Stars and Constellations, in order to give due honor to his meteoric majesty, if he is pleased to favor us with another anniversary. So with all love to uncle T. and my cousins and friends, I must thus early bid you good-bye.

“ Your affectionate nephew,

E. P. MASON.”

I was at this period suffering severely from an illness which prevented exposures by night, and I found it not less agreeable to my class in astronomy than convenient to myself, to put the large college telescope under the direction of Mason, to exhibit to them telescopic views of the Moon, Planets, and other celestial objects. But lest it may not seem to have been consistent with that

paternal kindness and watchfulness, which it became me to exercise over my interesting young friend, to tax him with additional labors, when overburdened already with tasks too severe for his feeble frame, I beg leave to say, that he assured me, and I had good reason to believe, that these services to which I invited him were less severe and involved less of exposure to health, than those which he would have otherwise prosecuted for himself; while he felt himself greatly obliged and relieved by the small earnings which he was thus enabled to acquire. I may frankly aver that, both on this occasion and ever afterwards, none of his friends was more assiduous than myself, in expostulating with him for tasking himself with labors, and encountering night exposures, so dangerous to his frail constitution and tender age.

Of Smith's great telescope mentioned in the preceding letter, a more particular account will be given in an extract from his paper on the Nebulæ, to be inserted in the Appendix. It was at the time the largest telescope ever constructed on this side of the Atlantic. Although rudely mounted, it afforded well-defined and magnificent views of the Moon and Planets, while its abundant light rendered it peculiarly excellent for such dim objects as the fainter Double Stars, and the Nebulæ. It will be long remembered at Yale, as an extraordinary production, for two or three young men to achieve during the short intervals enjoyed by the college student. Nor indeed can such an enterprise be safely recommended to any one hereafter, lest he should sacrifice to it either his education or his life. As soon as the nights became too cold for star-gazing, the indefatigable spirit of Mason found another way of access to the mysteries of

Nature, which, for a while, he pursued with an ardor almost equal to that with which he had explored the starry heavens. Near the close of this year (1838) he commenced attending Professor Silliman's lectures on Chemistry, to which he not only gave a deep and interested attention, but immediately entered the field of experimental inquiry for himself. To this he alludes in the following letter. He also refers to an application which he had made to an early and intimate friend for pecuniary aid, an appeal which was promptly and generously met. This application he intended to conceal from his aunt, but her truly maternal vigilance had detected it; and, although such timely aid might have rendered her own efforts less needed, yet nothing could repress the overflowing expressions of her affection for him. But such was the delicacy of his feelings, that he would not have ventured upon this application had he not seen, as he thought, the way now opening before him to reimburse in a short time the advances of his friend.

To Mrs. Turner.

"Yale College, April 17, 1839.

"DEAR AUNT—

"I received yours of the 13th ult. no longer ago than last Saturday, and Mr. C.'s letter coming the same day with money enclosed, I was of course, obliged to answer it first. Add to this, that our examination has just commenced and I have been in the full hurry of preparation for it. The hundred dollar bill that you gave Mr. C. to send to me came safely, and I see by your letter that you have found out my application to him for assistance, which I had hoped

you would not, at least until after I had graduated. I trust that you will be under no fear that Mr. C. will not soon receive his money in return. I shall have immediate employment as soon as I am at leisure, either in New Haven or in Michigan, and as profitable as can be expected. I may be in more doubt to choose than difficulty to obtain. Mr. C. wrote to me a little about the clerkship which you mentioned, and remarked that he thought the kind of employment which it would require, would be very tasteless to me, in which I perfectly agree with him; and my engagements here would not allow me in any case to take the place, even if he were at liberty to offer it to me.

“My intention was, before I received your letter, to spend the vacation with my friends in Litchfield county; and, much as I wish to visit Richmond this spring, and see you and uncle T. in your new place, and Mr. C. in his old one, I think you will agree with me, when you hear my reasons, that I ought not to change my former intention. My father's parents in Litchfield, my grandmother in Warren, my father's brothers and friends in Litchfield and South Farms, and my old acquaintances in Washington, I have not visited since I entered college, although so near; and I should be extremely reluctant to have this last opportunity of visiting them while I am in college, go by without improving it. I know, from messages I have had from them, that they must even now feel slighted at the little attention I have paid them, and I fear I should deserve their coldness, if I should seem to show it much longer on my part. My father wished me to spend one vacation there at least before I leave college, probably for the same reasons that I wish it. Again, I

shall have abundant occasion in walking from one part of Litchfield county to another, to gain that exercise, and gather that strength which I shall so much need for the coming summer, for the want of which last summer I ran down to as low an ebb of health as I ever hope to again, commencing in the spring. I have no signs of another such descent this spring, and I hope to have none. Now in Richmond, I certainly should do but little in the way of vigorous exercise, and without it I should have little energy to prepare myself for the ensuing Commencement, or to resist disease. Moreover, I hope, if circumstances permit, not to decline, but merely to defer the visit until Commencement ; then, in the fall vacation, to pass a few weeks with you, when I can enjoy the visit without any uncomfortable recollections of duty neglected elsewhere. Believe me, it is no absence of inclination or desire to see you, that induces me to forego your pressing invitation. The loss of a dear and mutual friend and father, has by its common affliction only endeared the living to one another, and reminded them, that the time for mutual intercourse and sympathy is short.

“I have paid but little attention to astronomical observation this winter, but my substituted hobby would, except so far as you have yourself taken some interest in it, please you no better. You would readily see, were you in my room, what science it is that has crowded out its brother, in yon utensil, which whilom was an inglorious wash-tub, but which is now elevated by the addition of a few shelves to the dignity of a pneumatic trough ; and in the glorious array of receivers and retorts that share with it the corner of my anti-chamber, which, perchance, to an uninitiated or a

malicious eye, might appear to be nought but cheap tumblers and fourpenny flasks, elongated by cork and tube; and in the other paraphernalia of the science that are heaped up there, which, erst employed in the ignoble uses of domestic life, have emerged from obscurity and been consecrated to the exalted purposes of chemistry. Yet has this very humble apparatus conjured up the worst spirits to indulge in fierce strife, and exercise their warring propensities;—some of the most refractory of them, as sulphuretted hydrogen, chlorine, and the like, by no means to the satisfaction of my olfactories and lungs,—organs it were devoutly to be wished the chemist could dispense with altogether. An explosion or two, moreover, (shudder not, dear aunt, nor give me a world of good advice in your next, for ended is my chemical career,) that did not the harm which the temerity that occasioned them warranted, have wonderfully exalted my confidence in my own abilities, and, of course, my enthusiasm for the science in general, although no longer lavishing itself in direct experiment.

“To all friends who love me, my warmest affection in return.

“Your affectionate nephew,

E. P. MASON.”

Agreeably to the intention expressed in the foregoing letter, Mason, as soon as the spring vacation arrived, took his staff in his hand, and set out on foot on a pilgrimage to Litchfield county, to visit the scenes of his nativity, and the friends of his childhood. In some of these peregrinations, he was accompanied by his friend Hollister, who embraced this opportunity to

renew an acquaintance with him, which, falling as they had into different classes in college, had not been very intimate for several years. Mr. H. thus describes his appearance at that time. "The first opportunity that presented itself to me of renewing my acquaintance with Mason, was in the spring vacation of 1839, when he visited Washington to see again faces once familiar to him, and to renew those associations which formed some of the brightest links in the chain of his existence. I have never been more happily disappointed than in discovering and correcting the mistaken opinion I had formed of his character. I had looked for the philosopher—the man of theories and calculations—and found only the child of nature, with an intellect clear and strong enough to pry into her deepest works, and a soul to feel their beauty. He showed a taste of the most refined order, and feelings of the nicest texture, while his simplicity, and I may say meekness of heart, lent a peculiar charm to his whole conversation. He no longer appeared formal in his manners, but passed from one theme to another with a rapidity that could be prompted only by a fancy most vivid and flexible. As we rambled over the hills, and through the forests, that helped to make up so much of the picture of his life, he seemed to fling aside, for the moment, his severer studies, and abandon himself to the luxury of dreaming over again the visions of his boyhood.

"He delighted to linger about the house where he was born, and to stroll through the garden and orchard; and he pointed out to me, with much emotion, the very room where his own mother first told him of the way to heaven. 'Almost the first thing I can remember,' he observed, 'is the smile with which she swung me back-

ward and forward upon her foot, and the kiss with which she bade me good-night ! The love that he cherished for this amiable parent was one of the strongest ties that bound him to the past. His native village needed no other hold upon the affections, while it contained the ashes of one so dear to his remembrance. He was often heard to say, that if he cherished any one feeling more than another, it was that her spirit still hovered around him to keep him from temptation by day, and to watch over his pillow by night. I remember well his first visit to her grave. It was almost evening, and the sun was just disappearing from the hill-tops. He stood a moment by the monument, and then reclining against the mound that was heaped above her, he dropped his head upon his breast, and wept with the sorrow and simplicity of a child. It was the grave of his mother ; of that mother who first soothed his rest, from whose lips he had learned to lisp the first accents of an infant's prayer. How little did we think, as he bent over her tomb, that he, too, in the short space of a year and a half, was to sleep with slumbers unbroken as hers !"

These interesting and romantic incidents, mingling with the sweet recollections of childhood ; the delightful intercourse enjoyed with his kindred and earliest friends ; and the invigorating mountain airs and wild scenes of his native village, both strengthened his outward frame, and afforded a continual feast to his soul. Indeed, the occasion so wrought upon his affections, that fountains long sealed were again opened, and he poured forth his feelings in beautiful poetical effusions. A few of these I shall present to the reader ; others, and especially such as were written at the request of

his female friends, including several acrostics, are generally of too confidential a nature for the public eye.

ON REVISITING THE SCENES OF MY CHILDHOOD.

“ At last I tread once more the wonted haunts,
Where woke my infancy to life and light ;
Each everlasting hill its outline slants,
As recollection imaged to my sight,
And time flows back ; and my stirred bosom pants
Once more with early boyhood to unite,
And feel its careless breath go lightly forth,
And hear the echoes mock its sounds of mirth.

“ On each remembered spot the dizzy flight
Of by-gone years is ruthlessly engraven ;—
And this is life ! still onward in despite
Of human power,—perchance of that of heaven ;
Like a raised wave before the tempest’s might,
It may not breast the power by which ’tis driven,
But still borne surely to the fatal shore,
To break, and fall, and perish in its roar.

“ Is life no more ?—Oh ! never yet where dwelt
The image of the Almighty, hath the breath
Of Time’s defied and fruitless power been felt :—
All else shall quail before the blast of death ;
The sun shall be as blood ; the earth shall melt ;
But the immortal soul shall tread beneath
Her disembodied might the chain of Time,
That dare not so near God’s own glory climb.”

Soon after Mason’s return to college to spend the last term of Senior year, he addressed the following letter to his valued friend at Richmond.

To William B. Chittenden, Esq.

"Yale College, June 29, 1839.

"DEAR BROTHER—

"I have come to the sage conclusion that I ought to write to you a letter about this time, to inform you that I am alive and in good health, and am neither expelled, suspended, dismissed, nor have suffered from any other of those little accidents that are apt to befall academical students. I give myself, of course, vast credit for my prudence and sagacity, in escaping the rocks and quicksands hinted at a line or two above, and in piloting myself thus far in comparative safety. Moreover, the haven of the voyage is now in sight, at the short distance of seven weeks off; and unless, as Mrs. Hemans says, 'the sailor dies in sight of the green shore,' why I suppose I shall anchor in safety. This is truly a splendid comparison for my purpose, to talk of the port in sight, and anchoring, when I am rather emerging from a quiet river, as it were, upon the wide sea of life; but we students seldom think of that, till we find ourselves fairly out, and tossing among the waves, and wrestling with the billows.

"I have little else to do now but to write an oration for Commencement, do a little something to keep myself in funds, and a little something else to keep myself in health, till the close of summer; I hope then to come down and see my friends in Richmond, if circumstances permit, and then, for aught I know, I am for the 'Far West'—a drop in its wide waters. It is a strange thing—this being thrown upon the world—the unceasing struggle of an immortal mind to purvey for the body,—to find 'what it shall eat, and what it shall drink, and wherewithal it shall be clothed,'—while it has in

view, all the time, an immense field of nobler pursuit and higher action that it can scarcely enter, confined as it is to these baser occupations.

‘It is godlike to unloose
The spirit, and forget yourself in thought,
Bending a pinion for the deeper sky;
And, in the very fetters of your flesh,
Mating with the pure essences of heaven!’

“But oh! it is most earthly to come back from such a flight, and find the pockets empty, and the outer man failing through neglect. Ought these things to be so? Doubtless they ought, for so it is ordered; and had I time or patience to philosophize a little deeper, I might discover the wise purpose of all this. But now with the fetters of high anticipations clinging to me, I have scarce patience to ask what wise purpose, in the providence of the world, is answered by my being thus prisoned and chained down, like a caged bird, from whither my soul pines to wander. It is but an item after all that I shall throw into the mighty flame of ambition that is burning in the far west; and to the world at large it matters little whether my span of life is consumed in the addition of dollars and cents, or whether my ‘thoughts were wings to bear me o’er creation;’—and the world’s end is to be answered and not mine. I feel like an over-wrought novel reader, half sick of life’s stern reality—in short, ‘I’ve ta’en to the misanthropic vein, I think they ca’ it.’

“The foregoing is a fair specimen, I believe, of the dreams and fantasies of a youth about to enter life,—a sort of would-be philosophy; and yet, foolish though it be, it had its source in the feelings. I should not, however, have been betrayed into it, did I not believe,

from some of your expressions, that you had once, if not now, feelings, in some sort, like my own, at least sufficiently so for sympathy, though perhaps of such depth and intensity, that instead of sympathizing, you may scorn mine as fantastical day-dreaming, and I shall do the same myself to-morrow.

“ With regard to money matters I shall be as brief as possible, for the train of thought in which I have just indulged, does not dispose me to feel kindly towards the discussion of that theme. I shall have business enough in assisting Professor Olmsted in the preparation of his *Astronomy*, to furnish me with the means of liquidating all expenses for some time. Besides which, I had the offer of fifteen dollars for the calculation of an almanac, which will, I presume, cost me one day's hard labor, and perhaps two at the most. I therefore accepted the offer, although I shuddered at the monotony of the undertaking. Other minor sources of revenue I may depend upon. On the whole, as far as I can cast a prophetic glance, I shall need no further remittance, at least at present. Should I at all stand in need of a small one, however, I will write and inform you.

“ I have spent a very pleasant vacation in Litchfield county—travelled nearly all over it, and could scarce find a corner so obscure as to be entirely destitute of friends and relations. Among other achievements, I perpetrated a good deal of poetry in the albums around, which, were any of it worth sending you, I would do so according to promise. I will send you, however, to redeem a promise, a piece of mine in the last *Yale Literary Magazine*, entitled ‘*Night Musings*.’ The periodical is entirely sustained by students of Yale College. There is also a piece in the same magazine,

‘Death of Saul and Jonathan,’ written by a friend of mine, the first editor of the magazine, which I wish you would read. Give me your opinion of both of them, especially without fear or favor towards mine, for I am not so in love with praise, or so like the—who is it?—the Abbe in *Gil Blas*, that I cannot bear friendly criticism, or so experienced in composition as not to need it; besides, I claim that I ought to receive candid and severe criticism from you, as being your protégé in poetry. If I have ambition about it, it is not that this piece should be pronounced good, whether it is so or not, but rather that I may be able to do better through consciousness of my defects at first. Therefore, spare not, if you chance to have leisure, to give me the benefit of your experience in this matter. The idea of the other piece I spoke of, was taken by the writer from the beautiful style of poetry of David’s lament over Saul and Jonathan in the first chapter of Second of Samuel. The name of the author is —, of the Junior class. He has a great deal of natural poetry about him, and I think will become ere long distinguished in that line. I have at least sufficient poetical taste about me to acknowledge his superiority. Though not eccentric outwardly, the deeper traits of his character are strange, and not marked with the stereotype of common life. He has a peculiar simplicity of feeling and expression, which perhaps you may notice in his piece; and withal that intensity of feeling in the bright as well as in the dark shades, which gives poets, and which gave Byron above all poets, that strength and power that can hardly result but from the actual experience of the same feelings, and in the same intenseness with which they are portrayed.—Oh! will

you be so good as to hand to aunt T. the number of the magazine I send you, when you have done with it, as I dare say she would like to see a piece of mine in print. I suppose she believes that I haven't a thought in life but what is in some way or other bounded by sides or surfaces, straight lines or planes.

"I am now in much better health than I have been, for the greater part of my time in college. The cough I had last year, and which threatened fairly to run me down to the lowest ebb, I have no trace of this year. I exercise much more than I was wont, having more time, and having learned its necessity by experience. I hope to hear from you very soon, though if pressed with business so as to render writing inconvenient to you, I hope *not* to hear from you very soon.

"Your affectionate brother,

E. P. MASON."

The piece of poetry alluded to in the foregoing letter, was written soon after his return from his excursion in Litchfield county, where he seems to have caught a new and lofty inspiration from nature. Both this and the following piece seem to me worthy of our best poets.

NIGHT MUSINGS.

"The fevered glow of parting day,
That flushed so late the brow of heaven,
To marble paleness fades away
Before the cool of youngest even;
'Twas flushed like mortal brow, when roll
The storms of passion o'er the soul:
'Tis faded, like that brow when thought
From eve a kindred calm hath caught.

"Swift over twilight's lovely face,
Those changing hues each other chase;
Trembles from snowy depths afar
The dawning of her earliest star,
And glows the crescent's subtle horn,
From the expiring sunset born—
A gem upon her mantle worn,
And binding night to day,
Where evening hangs on day's retreat,
Where bounds of light and darkness meet,
And each, on heaven's azure sheet,
In the other fades away.

"Wan Night upon her vesture's waste,
With pen of fire that bow hath traced,*
But coloring of darker beams,
As of the sunless hue of dreams,
Hath fully bodied forth that sphere
The brighter crescent but begun,
And bound beside the bright form there
A quenched and rayless one,
The living with the dead,
The present with the past;
The spirit's vital essence, wed
To the cold clay in which 'tis cast.
Well were it did the spirit's light,
Like that orb struggling from its night,
As surely on its destined way,
Wax brighter to the perfect day.

* On the "Twilight Bow," see Professor Morse, in *American Journal of Science*, xxxviii. p. 389.

“ Deeper hath swelled the evening shade,
And mingled wooded hill and glade,
And raven-pinioned Night,
In sable mantle dight,
Arousing from her orient deep,
Rides lowering up the darkened steep,
While Heaven’s numerous pageantry
Light onward her triumphal course,—
Those watch-fires, fed unceasingly
From light’s own holy source.
Down, down the welkin’s slanted side,
Her robe of shade descends ;
On the last ebb of even-tide
To earth it slowly bends.

“ Beneath her solemn temple roof,
Night walks in lone supremacy,
And darkness weaves his braided woof
To deck yon boundless canopy.
Ye stars ! that strew his funeral veil,
Ye are no fleeting, changeful race ;
What are ye then ?—beyond the pale
Of Death’s cold reign and stern embrace ?
Are ye immortal ? do ye share
The deathless nature of the soul ?
Though not the past, the future heir
Of life beyond Time’s vain control ?
If not unfading, yet are ye
Most fadeless of the things that be,
And nearest immortality.

“ Brightly ye burn on heaven’s brow ;
Ye shot as bright a ray as now,

When mirrored on the unruffled wave
That whelmed earth's millions to one grave;
And ye shall yet burn still the same,
When blends with yours that mighty flame,
That shall overwhelm earth in darker gloom
Than cloud o'er Eden's primal bloom.
From storm, and cloud, and meteor's glare,
And the azure-curtained day,
That fills with light the dazzling air
Soon as they pass in haste away,
Ye dart again your changeless ray;
Shall ye not thus forever beam?
Must ye too pass, as doth a dream?
Can ye fear change, or death, or blight,
Isles of the blessed! on your sea of might?

"We may not pierce with curious eye
The mist that shrouds your destiny,
Your present might—your home—the abyss;
Oh! 'tis enough to gaze on this!
To feel that in the eye's embrace
Lies an infinity of space;
That vision hath no term,—no bound,
To hem its endless circle round,
But that with which it may converse
Is boundless as the universe.

"It is a joy as wild and deep
As ever thrilled in pulse and eye,
In the lone hour of mortal sleep,
To look upon your majesty,
With you your solemn vigils keep,
As your vast depths before me lie.

And when the star-mailed giant*
A blaze of glory sheds,
And high in heaven defiant
His lion mantle spreads,
To watch his mighty form uprear,
As, spurning earth with foot of air,
He mounts upon the whirling sphere,
And walks in solemn silence there;
To watch him in his slow decline,
Until to Ocean's hall restored,
He bathe him in the welcome brine,
And the wave sheathe his burning sword."

Mason had now got into quite a poetical mood, for under the same date he writes a letter to Mrs. Turner, communicating another effusion, which, although short, seems to me to indicate much of the true spirit of poetry.

To Mrs. H. B. Turner.

"Yale College, June 29, 1839.

"DEAR AUNT—

"Well, aunt, I have but just a week more of confinement to college duties, except preparation for Commencement, and then—farewell to Old Yale! Think not that I bid it farewell in a tone of pleasure or triumph, as emancipated from its thrall; no, rather in sadness that I must leave halls endeared by time and the mutual intercourse of friends and brothers. A truce however to this desponding vein.

"You think, perhaps, that it is next to impossible for me to abandon, for a moment, the contemplation of

* Orion.

mathematics and the stars ; and that, even if by some strange chance, I happen to write poetry, it must be about the stars of course. I will therefore send you a trifle of mine far enough from all this. The origin of it was in an evening call, when myself and two young ladies, one of them a poetess, pulled up our chairs around a vase of water on the table, in which a poor rose-bud had drooped and drowned, with the express purpose of jointly commemorating its hapless fate. Though achieving nothing myself *at the time*, I wrote off the following next morning :

TO A ROSEBUD,

DYING IN THE VASE WHITHER IT HAD BEEN TRANSPLANTED.

Why droops so mournfully thy head, pale flower ?
Why hangs thy green tress on the water's brink ?
Not now thou bendest with the grateful shower,
Whose drops once wooed thy thirsty leaves to drink
Life from their coolness ;—No ! no freshness now
Blooms on thy fading leaf, and bud of snow.

'Tis not the dews of night are heavy on thee,
Starring thy cup with rainbow loveliness ;
Nor yet the bee, so oft that hung upon thee,
Till bent thy blossom to his gentle kiss ;
No ! thou art stricken—ne'er to rise anew
To glad the bee, or drink the morning dew.

A rude hand plucked thee from thy native bower ;
No longer thou by thy loved breeze art fanned,
And thou art pining for thy home, sweet flower,
As pines a captive for a distant land ;

And therefore droops thy head so mournfully,
Thy life was broken with thy parent tree.

And was it woman's hand that did thee wrong?
Was it frail woman that so rudely broke
The frailer thing, whose tenderness had wrung
From sterner man remittance of the stroke?
Tell not the tale, ye flowers! that could not save
Your hapless sister from her cruel grave.

"I intended the pathetic when I wrote these lines, but did not succeed as I intended, which is, I believe, not unfrequent with myself, as well as with people in general. I have a great desire to come and see you again, and anticipate a visit in the fall with much pleasure. I have a thousand things to say to you, that can't be said in a letter—they freeze in the slow process of oozing off at the end of my pen.

"Your affectionate nephew,
E. P. MASON."

The next letter to his aunt was written July 7th, just after he had finished his oration for Commencement, and is in his sprightliest mood. The earlier part, however, is taken up with intelligence respecting his father and family, who were now quietly settled in Michigan. The mention he makes of them always indicates the most affectionate disposition, but the particulars are usually so personal and confidential that I have been obliged to omit them in copying his letters. He next proceeds to vindicate himself against an opinion which he supposed his aunt to entertain, that he was wholly immersed in his studies and seldom fre-

quented society. "I passed (says he) my winter vacation here as usual; not, as you suppose in your letter, entirely immersed in the college walls, but much of it in society. As it is not difficult to see that you are under the impression that I am a sort of Diogenes in a tub, as far as regards domestic and social feelings, I state this fact as evidence that I plead not guilty. Last vacation I spent no less than six evenings of the fortnight in visiting my friends in town, and the eleven successive evenings previous to vacation, Sunday evenings excepted, were spent by me in the same manner, and three of them at social parties until half-past eleven o'clock. Add to this, that when a senior in college perpetrates such enormities as this, he is usually considered as pretty far gone as to scholarship. Indeed, I should consider myself so, if the course I have described were to become habitual; but I trust my plea has been sufficient to convince you, that I am in no particular danger at present of being buried alive. As to my reading, I look over the English poets occasionally; I am reading Milton's *Comus*, *Sampson Agonistes*, *Christmas Hymn*, &c., just now; and as to prose, my appetite devours indiscriminately Milton's *Prose Works*, *Hutton's Logarithms*, the *Pickwick Club*, the *Memoirs of the Astronomical Society*, *Oliver Twist*, and the *Temperance Documents*.

"I have attended a good deal to chemistry this year, and have let loose in my room nearly all the primitive agents of nature, solid and gaseous; and my neighbors have become so accustomed to my operations, that were I fairly blown up, those in the rooms adjoining would think it was only 'E. P.' performing an experiment. ('E. P.' is my college nickname; nobody thinks

of calling me Mason.) Pneumatic cisterns and gun-barrels begin to add their charms to globes and telescopes."

The looked-for day of Commencement at length came, and Mason performed his part well on the public stage in an oration "on a Comparison of Ancient and Modern Literature." The composition of his speech was good, and abounded with just thoughts on the distinctive characteristics of ancient and modern learning; but his elocution, although interesting, was neither so brilliant nor so energetic as to arrest peculiar attention.

Now came a season well known to many a graduate, when, as soon as the excitement of Commencement is over, he awakes to the reality that he is now without an object, and unsettled as to his course of life. The props upon which he has hitherto leaned, now suddenly seem to fall, and he is startled to find himself resting on his own untried powers. The difficulty of choosing a profession, the necessity of immediate employment with no prospects open before him, and the difficulty of deciding between conflicting motives, harass and debilitate his mind, and sometimes cloud it with gloom and despondency.

Although Mason had begun to feel something of these "horrors," yet several advantageous offers of employment encouraged his hopes, and left little room for despondency; still he was perplexed between different alternatives, and at length concluded to defer any decision until he had complied with the kind solicitation of his Richmond friends, to pay them a visit, and to take with them an excursion to the healthy mountain region of Western Virginia.

CHAPTER VII.

LIFE OF A RESIDENT GRADUATE.

Commences his researches on the Nebulæ—Description of these objects—His visit to Philadelphia and delighted intercourse with men of science—Plan of extensive observations for determining the longitude—Commences his Treatise on Practical Astronomy—Straitened pecuniary circumstances—Simple habits of living—Intensity and variety of his labors—Sentimental reveries.

IN the correspondence of the summer of 1839, there appears so much of poetry, and so little of astronomy, that it might be inferred that he had lost his taste for those pursuits, or that it had been superseded by his more recent passion for chemical experiments. So far, however, is this from being the fact, that this summer, especially the few weeks that intervened between the Seniors' examination, which took place early in July, and Commencement, which occurred about the twentieth of August, was the most productive of any portion of his life of valuable astronomical observations, since it was during this period that he made those fine researches on the Nebulæ, which probably constitute his highest achievement, forming as they did the basis of his elaborate "Observations on Nebulæ," published in the Transactions of the American Philosophical Society for 1840. Mason had no sooner obtained the use of a large telescope, than he speedily exhausted all the more common and superficial objects, as the telescopic views of the moon, spots on the sun,

and aspects of the planets ; and early in his sophomore year, he was, as he expressed it, "on the full chase after double stars and nebulæ." These are among the most recondite of all the researches of the practical astronomer, and require the most refined powers and instruments of observation. Smith had by this time so far completed his great telescope, as to afford an excellent instrument for observing those objects which required a *superior light*, as is the case with double stars and nebulæ ; and these two youthful astronomers were no sooner released from the college shackles, than they devoted themselves with extraordinary industry and enthusiasm to these captivating researches.

Those who are not conversant with the recent progress of astronomical discovery, may require to be more particularly informed respecting these bodies, (the nebulæ) before they can understand or appreciate the labors of our young astronomer in this new field of research.

When we look upon the starry heavens in a clear night, we may discern, here and there, groups of stars forming small clusters, scarcely distinguishable from one another by the naked eye. The most conspicuous of these groups, and the best known, is the cluster called the Pleiades, or Seven Stars. Similar clusters, growing more and more obscure, are seen in the head of Orion, in the Sword-handle of Perseus, near Cassiopeia's Chair, and in Cancer. The last, which is called the "Bee Hive," appears to the naked eye like a comet ; but when viewed by a telescope, even of moderate powers, the dimness vanishes, and in its place we are presented with a brilliant and beautiful assemblage of small stars. The Galaxy, or milky-way, is composed,

to a great extent, of collections of these small luminaries, whose blended light affords to the unassisted eye no distinct image; but when viewed with the telescope, myriads of brilliant points, or small stars, expand over the field, to the surprise and admiration of the beholder. On ranging over the firmament with a good telescope, the eye is every now and then arrested by one of these nebulae, some of which are readily resolved into stars, but others retain their dim and cloudy appearance. These, however, when viewed with telescopes of higher powers, in some instances, give up their nebulous appearance, and are seen to consist of innumerable small stars; while, in other instances, they constantly retain their nebulous character under the highest powers of the telescope hitherto applied to them. Various considerations have led astronomers to the belief that many of these formations do not in fact consist of stars, but of shining matter existing in a widely diffused state, and not formed, like the stars, into suns.

The first astronomer who entered fully this fairy-land of astronomy was Sir William Herschel. The great telescopes in his possession, particularly his forty feet telescope, enabled him to see objects whose light is too feeble to be visible to instruments of inferior power. Of these remarkable formations, many of them lying, apparently, at the remotest bounds of the universe, Sir Wm. Herschel discovered and described more than two thousand. Their extent is, in many instances, prodigious, and their forms are very various; some exhibit much regularity of structure, being globular, elliptical, or of some other geometrical figure, while others are of the most fantastic forms imaginable. The present Sir John Herschel has prosecuted with great zeal

and ability the researches of his father in this interesting and curious department of astronomy, and by his residence at the Cape of Good Hope, has added to the catalogue many fine nebulae of the southern hemisphere before unknown to astronomers.

It was into this new and inviting field that Mason entered, with an enthusiasm equalled only by his extraordinary combination of powers adapted to such labors.

The following letter to his friend and astronomical associate, Mr. Smith, then in Ohio, enables us to follow him in his southern tour, undertaken immediately after receiving his degree.

To Mr. Hamilton L. Smith.

"Yale College, Oct. 10, 1839.

"DEAR FRIEND—

"Our firm is very suddenly dissolved, or rather separated, and its members are widely sundered; first, S. and next yourself, and I feel quite alone among the college instruments. However, I have no room or time for pathos; had I, I should doubtless make you weep over days departed. But I will not give you pain merely to show my power.

"I must first report progress on the nebulae business; and to do so, will proceed historically. I left town, you will recollect, for the South the Monday succeeding Commencement, and I passed four weeks there with my friends very pleasantly. On my return, I availed myself of a letter of introduction which Professor Siliman had given me, for John Vaughan, Esq., and which immediately introduced me very favorably to the scientific of Philadelphia. Mr. Vaughan, after introdu-

eing me personally to Mr. Walker, and afterwards by letter to Mr. Nulty, and showing me round the Library, left me in charge of Mr. Walker. I soon became acquainted with him, and he insisted on my taking lodgings in the same house with his. My room was next to his, and I spent the greater part of my time with him. The duties of his office (in the Fire Insurance Co.) allow him intervals of leisure, which he can very conveniently employ in calculating occultations, or in reducing his observations. I went over Bessel's formulæ for occultations with him at his office desk. After two o'clock he is at leisure for the remainder of the day and evening. Mr. Walker and Mr. Vaughan invited me to a conversational meeting of the Franklin Institute, where I had an opportunity of conversing with many of their men of science. Also the next evening Mr. Walker accompanied me to a conversational meeting of the American Philosophical Society, where I conversed with almost everybody,—Professor H——, Doctor H——, Doctor P——, and many others; in short, I was a little famous, having taken my drawings of Nebulæ with me for the purpose of consulting Piazza's catalogue, and the *Histoire Céleste*, in case I should find them there, for stars not found in our catalogue. Mr. Walker being much at my room, I had occasion to show them to him; and Herschel's Nebulæ, in the *Philosophical Transactions*, being at his room, he could easily compare them. He insisted on carrying them down to the Philosophical Society where we went, and showed them to most there interested in astronomy. In the course of the evening, Mr. Walker, in behalf of the committee of publication, requested me to contribute my paper to the *American Philosophical Transac-*

tions, promising to be at any requisite expense for such plates and engravings as I might wish. I replied that the paper had been offered to Professor Silliman, for the *American Journal of Science*, and therefore was not at my disposal, but said I would confer with Professor S. about it. On my return, I mentioned the matter to Mr. S.;—told him that I had no preference for the *American Philosophical Transactions*, other than for reasons connected with the peculiar nature of the paper I had drawn up, namely, that it was intended not so much for popular reading, as for those who had paid especial attention to such subjects; that the *Transactions*, being forwarded to most of the European scientific societies, the paper would sooner meet the eyes of those for whom it was principally intended; that the chief value of the paper being its permanence, as affording means for accurate comparison of nebulæ hundreds of years hence, such *Transactions* were a better vehicle than a more popular publication. Professor Silliman readily assented to the proposed arrangement.

“I spent four or five days in Philadelphia very pleasantly. I observed the occultation of the Pleiades by the moon with Mr. Walker, in the observatory. There were four immersions and as many emersions. I had a complete series of the whole—the rest missed several. Mr. Walker missed two of the immersions, through his politeness in furnishing me with the best telescope. We agreed, however, in the times of our remaining six, within five-tenths of a second, and sometimes within one-tenth; which, as we observed in silence, and set down our results separately, was a very exact coincidence, and greatly increased our confidence in each other's accuracy. The other observers strayed from the

mean often by two or three seconds, and sometimes much more. Mr. W. reduces his transit observations, and all his observations, in the best style, by equations of condition and balance of errors. He is extensively acquainted with Schumaker's *Astronomische Nachrichten*, and translated much of it for me from the German, especially Professor Bessel's papers on occultations. I have made arrangements for observing occultations in concert with him and his corps, for the determination of our difference of longitude. In passing through New York, I saw Mr. Blunt, with whom I conversed on the same subject, and engaged him to observe occultations to ascertain the difference of longitude between New York and New Haven. I proposed to send him an announcement of all observable occultations in advance. Accordingly, I have calculated all the occultations for this month for New Haven and New York, approximately, and sent Mr. Blunt the time of immersion and emersion to the nearest minute, and the angle from the vertex at which the star immerses and emerges. Of course guided by this list, the observer can operate with far less trouble to himself. I also engaged in the same business Mr. Wolf, the optician, and sent him down the same list of occultations. He is quite enthusiastic. I also conferred with Mr. Blunt about sending to New Haven some first-rate chronometers which he is daily expecting, for the purpose of determining the difference of longitude between New York and New Haven. I think, moreover, it will be worth while to try the method of determining longitude by means of shooting stars, which plan I spoke of to Mr. Walker, but he did not think it practicable, on account of the

distance between Philadelphia and New Haven. New York now forms a midway station, between which and New Haven, on the one hand, and Philadelphia, on the other, I think the same meteors can be seen. Mr. Blunt showed me in manuscript the late determination of the difference of longitude between New York and Greenwich, by chronometers, carried back and forth by the British Queen (steamer) from London to the Brooklyn observatory of Mr. Blunt. By carrying chronometers also from Brooklyn to New Haven, we shall have an unbroken chain of chronometric observations with Greenwich, consisting of only two links. I saw some fine transit instruments in boxes at Blunt's; also an altitude and azimuth instrument, very beautiful. I saw them graduating instruments there in style.

"I returned to New Haven last Tuesday, the first of October. I have succeeded in measuring differences of right ascension and declination very accurately with the college micrometer, though I have had many difficulties to contend with, from the imperfections of the observatory, and the want of nice adjustment in the instruments. I hastened from Philadelphia, as I knew I should have but a few days on the nebulae in Sagittarius before the moon would interrupt me, and after the moon was gone, they would not be seen again till next year. I have therefore observed diligently every clear night, that is, six out of nine nights since I arrived; but the nebulae set very early in the evening, and give me little time. By 'diligently observing,' I mean bending all my force on them every moment they are above the horizon in the evening. I have thus obtained between 200 and 300 good measures of differences of

right ascension, and upwards of 150 differences of declination.*

“On projecting the brighter stars in the Trifid by their right ascensions and declinations, as thus determined, I find that, by pricking them off on one of my drawings, the places, as determined by the eye, do not often differ on the paper from the accurate places by more than one-thirtieth of an inch, or less than one second of time.

“I have no room to say a great many things I would like to say about my visit to Philadelphia, my present observations, and other matters. I am now rooming in Professor O.’s college room, immediately under the observatory, and am engaged in writing for him. I can readily go up to the observatory at any time of night. I shall soon get up every morning for any number of mornings to work on the large nebulae.

“Your sincere friend,

E. P. MASON.”

From this long letter I have transcribed more particulars, perhaps, than will be interesting to the general reader; but they serve to exhibit in a clear and striking light, how completely he was thus early absorbed in the most recondite and refined labors of astronomy.

* “I have no room to detail my methods, but will give you an idea of their accuracy by a specimen taken at random from last night’s observations. Here is a list of all the measures of one star in right ascension, No. 7, Trifid. $+9^{\circ}.0+8.6+8.8+8.3+8.5+9.0+8.8$; mean $+8.71$. Here are the evening’s measures on the next star, a very faint one; $+18^{\circ}.0+18.2+17.7+18.3+18.2+18.0+17.8+18.1+18.5$; mean $18^{\circ}.09$. The + refers to my zero star in the nebula Trifid, which I can compare with others seen by moonlight.’

His visit to Philadelphia and New York had delighted him exceedingly, opening to him, as it did, a personal acquaintance and correspondence with several kindred minds, and affording new facilities for gaining access to the labors and discoveries of distinguished astronomers at home and abroad. He was in a state of high exultation as he returned to college to enter upon labors, which the extent and severity may be judged of from the foregoing letter.

Having published an elementary work on astronomy for the use of college students, ("Introduction to Astronomy,") there remained to complete my plan a concise treatise on *Practical Astronomy*, intended to comprise an account of the mode of adjusting and using astronomical instruments, and the requisite tables for calculating eclipses and other astronomical phenomena. As one means of enabling Mason to continue at college, I had proposed to him to assist me in preparing this treatise, especially the tables. This, with the avails of a few private pupils, whose recitations he heard, promised to defray his expenses, which, adapted as they were to the simplest habits of living, were unusually small. Without any inconvenience to myself, I was enabled to reduce them also by affording him a part of my own college room, which I occupied but a small part of the time. The situation of this near the college observatory was very convenient for prosecuting his observations, as he intimates in the preceding letter. Partly from the disposition to furnish him literary employment, and partly from a growing conviction of his peculiar qualifications to prepare the proposed article on *Practical Astronomy*, I laid off, from time to time, more and more of the work for him to perform, until at length, I

arranged with him to prepare the entire treatise, and publish it as his own under the title of "Supplement to Olmsted's Astronomy." Although it was both my expectation and his own, that he would make this the leading object of his labors until it was completed, yet his passion for observations, and the necessary occupation of his time in reducing them, and in finishing his article on the nebulæ, which he was now getting ready for the American Philosophical Society, greatly retarded the progress of that undertaking. For the opportunity of accomplishing a work so near his heart, and prosecuting studies for which he now cherished a passionate fondness, he voluntarily conformed his habits of living to the most straitened form, and declined several lucrative offers of situations as an instructor in remote parts of the Union. Although, to discharge some pecuniary obligations he had incurred to friends, he earnestly hoped for some such situation "by and by," yet "for the present" he must complete this paper on the nebulæ.

Notwithstanding the absorbing nature of these occupations, our young astronomer appears, at this period, to have fallen occasionally into a sentimental mood bordering on melancholy. To a young female friend he writes as follows: "You, perhaps, may ask, what are my present pursuits and engagements? They are truly many and multifarious. I seem to myself a sort of Atlas, with a world of business on my shoulders, probably because, having been very lazy all my life before, the pressure of necessity makes me appear in my own view the more energetic. College life has passed away like a dream, like a tale that is told. I bade it a long and last farewell in the presence of many witnesses, and turned me to comparative solitude. Then

arose opening life, ambition, love, honor, future hope, and the brief race of man on earth ; they passed in solemn review before me, and I said, 'All is vanity.' Poetry, before the goddess of my admiration, I slighted, and her shrine I forsook. I cast sentiment to the winds. Science looked with pitying eye on my waywardness, and wooed me to be her adopted son, and I hailed her, Mother! I devoted myself to the abstruse sciences; I dwelt with Archimedes, and rose with Newton on the bold wings of induction, until the paltry earth where I was born scarce seemed native to me in the far dim distance. I returned to find the world cold and drear, and to walk beneath night, and familiar starlight. I sought to explore the difficult field of Analysis, and to gather to myself those aids by which the mind of man may dare to weigh and measure the universe, and there arose all around 'cycle on epicycle, orb in orb!'

"This latter figure of speech you may interpret as referring to huge piles of sheets stretching around my table in upward progression, like the seats of an amphitheatre, and covered with multitudes of the Arabic figures, in the midst of which this growing sheet, dedicated to yourself, finds as little sympathy as the Italian minstrel girl in the rude halls of the north, (vide Mrs. Hemans,) while sundry mathematical treatises rise far up in the background, towering above their neighbors, like distant mountains, snow-clad, 'clear, but oh! how cold!'

"I have been through life as one in sleep, and

'A change has come o'er the spirit of my dream.'

I said before that I had cast feeling aside, as a vain bauble, a useless coin that will not pass current in the

world I am to live in, and have let a cold philosophy usurp its throne ;

‘Fancy hath perished by an early doom,
So ravishing once, with her laughing eye,
And Wit sleeps sound on her sister’s tomb,
While her torch lies quenched and broken nigh.’

“You may consider me, therefore, in the light of a quiet, mathematical, unassuming resident graduate. The lofty airs wherewith I was wont to wrap about myself my Senior toga, and look down, Cæsar-like, on the little men and women beneath me, are all passed by. ‘A change came o’er the spirit of my dream,’ and I was motherless, and half an orphan. I need not say I wept, and *felt* too, albeit I had cast all feeling aside in stoical contempt : and I forsook the world awhile, and dwelt within myself, and with my deceased mother ; and when time, that wears away all things, had soothed, with a rough hand, the bitterness of such a loss, I looked forth with a less buoyant spirit, and more sober gaze upon created things, and learned wise lessons of human frailty and uncertainty, and became again the philosopher.”

The foregoing letter was truly an interlude, for nothing was more foreign to the nature of his pursuits at this time, than writing sentimental letters. The following epistle addressed to his friend Smith, is more consonant to his taste at this period.

“Yale College, Dec. 18, 1839. }
Half past 11 o’clock. }

“DEAR FRIEND—

“Having spent the evening in the observatory, and being fairly frozen up there, and compelled to desist, I

naturally thought of you during the progress of thawing out, and wondered whether you were enjoying the same delightful privilege of star-gazers. Thinking of you soon brought me to the sage conclusion, that it was high time for me to write to you, if I wished to know any thing of your progress in the erection of your telescope, and its use. So that being defrauded, as it were, of my anticipated 'night of it,' by the cold, I fill up the proposed time of observation in as much of an astronomical way as I can. In doing so, I proceed on nearly the same plan that was adopted by 'our company' the other evening when the Pleiades were to be occulted. It was cloudy, to be sure, but, not to be disappointed, we obtained a map of the Pleiades, and cut out a paper moon to push along over it; so we organized our corps, Mr. Bradley counting seconds, Mr. Haile looking through a paper tube, while I mystically carried the moon along in her path through the heavens. We were rightly served for our joking; for the clouds clearing off very suddenly, while there were yet two or three emersions to be observed, we had enough to do to be prepared for them.

"Mr. Hinman is now at work upon the plates of the nebulæ, though I have scarcely yet finished my measures; the weather has been extremely unfavorable during the whole fall vacation, so that I have made but slow progress. I have been troubled too, of late, by the freezing of my breath on the micrometer-head, which sometimes stops it entirely.* In such case, turn-

* The place where Mason made his observations, miscalled an "observatory," was a room in the tower of the old college chapel, having no fire, and peculiarly exposed to cold in winter.

ing it heedlessly might injure the screw irreparably. I have once or twice fairly frozen my fingers, so that I consider myself quite courageous.

"I am sorry you did not leave with me so much of a journal of observations that I might have made 'copious extracts' from it, that is, taken the whole of it. I find scattered notices on different pieces of paper of almost all our observations, and a sufficiency on the three we observed particularly, to make out something respectable. If you had kept a good journal it would have come into fine play; as it is, I can but record such notices of your observations as I put down at the time, and as I can fill up from recollection. The paper has been more trouble to me in the way of reducing observations than in actual observation, and I wish it were through with.

"I have been this fall actively engaged in observing all visible occultations. I compute them beforehand, and Mr. Bradley and Mr. Haile are always ready to lend a hand. Mr. Bradley is very accurate in observation. For example, in the five cases of instantaneous immersion on the dark limb which we observed together, we set down our results in silence, and on comparing we found only one of the five differ by as much as the fifteen-hundredth part of a second, and all the rest were within one-tenth of a second. The last observations agreed to the twentieth of a second; so that we now confidently reckon in all such phenomena of being within one-fifth of a second of each other. Most of these occultations will be available for the longitude.

I have been measuring the angles of position of some of the binary stars. My angles of position, night be-

fore last, on gamma Leonis, show a regular progression of that star, and its exact amount. Indeed, from all the means I have of judging, I believe my measures are much more accurate, and accord better among themselves than some of the later ones of Herschel and South, and will, I believe, serve for a new determination of the orbits. I have tried ω Leonis once or twice without success, but do not mean to give it up."

The letter concludes with some account of his astronomical dress, a description of which is also contained in the following letter to Mrs. Turner.

"Yale College, Dec. 26, 1839.

"DEAR AUNT—

"I fear I am growing recreant to all sense of duty and affection. I let a month or two pass, without a word of kindness and remembrance for friends, of all friends the kindest and most indulgent to my waywardness; and when a letter of solicitude comes rebuking my selfishness by its kindness, forsooth, two or three weeks more must elapse, before I can find time to answer it. To this same *Time* I am at present the veriest slave; affection, and every other goodly plant of my nature can find as little root in the hard soil of urgent 'business,' as the flowers of the east in the sunburnt pavements of Broadway; and though I would not willingly let the fair exotics die, I cheat myself into the delusive hope that I shall cherish them better next year.

"I was very sure my father had written to you, or I should ere now have communicated the sad tidings of the death of my dear mother. It was very unexpected to me; for I did not know that she was se-

riously ill until I heard of her death. I have been so little at home, that I did not regard the turns of illness to which she was subject, as of so dangerous a character as I probably ought to have done. It is but a melancholy pleasure to relate to you such circumstances of her last illness as I am acquainted with. She had been the subject of severe sickness, the latter part of summer, and had nearly recovered, when some slight exposure brought on a relapse about the middle of September. About the 25th, she sunk rapidly and was thought to be dying; yet by great efforts in the application of various remedies her pulse was recalled; but in vain. She expired peacefully on the evening of the 29th of September. My father writes very dispiritedly. He feels himself left alone to bear the weight of years, and feels deeply the loss of my mother. By his last letter, I am grieved to learn that his health is not good, and the rheumatism confines him much, so that he is unable either to preach or work. These misfortunes have not been without their effect on my spirits, although not naturally subject to continued depression from the influence of external circumstances. I reproach myself with too little duty and kindness towards my departed mother, and I can now make but poor amends by showing a truer sense of love and duty towards my surviving parent, and, by devotion to his interest, making his old age sweet with the experience of filial gratitude. Would that his health were within a son's gift.

"That your own health, dear aunt, is so well spared amidst all your labor and anxiety, is now to me a source of the highest pleasure; and though I could well wish your burden lightened, yet while I hear so

favorably of your health, I think more lightly of the other ills that flesh is heir to. The important subject of a *cloak*, which, next to myself, seems to occupy nearly all the anxieties of Roseneath,* shall now be attended to in due form. Although not possessed of a substantial cloak, I have a most excellent great-coat of pilot cloth, which is cold-proof. Moreover, for nocturnal observations, I have a panoply it would much amuse you to see. The head-piece consists of comfortables sewed together, so that head, neck, and breast are completely and thickly covered, leaving only the eyes and nose visible, and rendering a hat or cap unnecessary. Then, an enormous thick pair of woollen socks, lined with cotton-batting within, to guard my feet. I add the precaution of washing my feet and wiping them dry, and putting on fresh stockings for an observing night, and also of wearing very thick-soled shoes. In short, when in complete uniform and on parade, I defy any one to withstand the cold with more perfect *sang froid* than myself. I have not tried a temperature lower than seven degrees as yet, at least for any great length of time, but at seven degrees I can feel perfectly comfortable and warm for two or three hours. I would except my nose and hands, which threaten to freeze occasionally. I am thus particular to set your fears at rest on this point. I have no doubt that a glance at me in my regimentals, would fully satisfy you of providence and foresight, unless, indeed, you should unfortunately mistake me for a Russian ambassador, which is quite probable.

For myself, I am yet, and shall be for some time to

* The residence of Mrs. Turner, near Richmond.

come, with Professor Olmsted, having many other duties and means of earning money besides my immediate occupation. I am in very little danger of want of employment, although I shall probably ere long leave New Haven in pursuit of it. I had intended to remain in New Haven through the year, but have lately changed some of my plans, and given up the immediate prosecution of my favorite object. I shall, however, have soon done enough in the scientific way to be of considerable service to myself, if to nobody else. Cousin M., according to promise, is to have the full light and heat of all the luminaries wherewith I may garnish the firmament of science hereafter; and although they may be but faint and dim stars, half lost among brighter constellations, she has a keen eye for the faintest stars of even, and as quick and kind a one for these. I doubt not she will be the first to recognize their light if they shall attempt to shine.

"I am studying German:—expect to be able to read Goethe soon, and the *Astronomische Nachrichten*.* It would amuse you to know how I find time for it. Every hour is so fully occupied that I have found no room to crowd it in; I therefore have carried the necessary books down to my boarding-place, and when breakfast or dinner is delayed a few minutes, I seize the moment to acquire a new verb, or to read a sentence. The broken scraps of time will give me after a while a tolerable knowledge of the German.

"I walk every day, from eleven to one, with Professor Larned, who is a fellow-boarder with me. The depth of the snow, (about twenty inches,) and the in-

* The leading astronomical journal of Germany.

tense cold, have dampened our zeal but little, and when the roads to East and West Rock are blocked up by drifts, we go down to the steamboats and the end of Long Wharf. But I must bid you good-night.

“From your affectionate nephew,

E. P. MASON.”

The labors of Mason were now truly astonishing. Composing, by daily tasks, his Supplement to my Astronomy—calculating and observing all the current occultations, and reducing his observations in order to render them available for the longitude—taking accurate micrometrical measures of all the minute parts of the nebulæ he was describing—writing his elaborate article on this subject for the American Philosophical Transactions, which occupies about fifty printed pages, 4to—learning the German language in order that he might be able to peruse the astronomical journals and other German works on this science—and carrying on an extensive and voluminous correspondence with several astronomers and private friends;—these together form an amount of intellectual labor, in view of which we cease to wonder that his frail nature sunk under the accumulated load. The question, indeed, may reasonably be asked, why did not his friends, especially myself, who had peculiar opportunities both to observe and avert the fatal danger into which he was thoughtlessly precipitating himself,—why did we not warn him of his fate, and endeavor to rescue so extraordinary and interesting a youth from an untimely grave? We reply that his friends, so far as they were aware of his danger, did not forget their duty to him. His faithful and affectionate aunt constantly urged and entreated

him to forbear ; other female friends of the college families expressed to him their apprehensions ; and I had many serious conversations with him, using all the persuasions in my power to induce him to remit the severity of his application, and to avoid such extreme exposures to the night air. But it appears that none of his friends (not even myself, although he lived in my college room) were fully aware of the extent of his labors and exposures. He concealed them from our view ; nor had I any adequate conception of the havoc he was making of himself, until I learned it from the papers now before me.

In answer to my inquiries respecting his habits of exposure by night, his friend and coadjutor, Mr. H. L. Smith, remarks, alluding to the time when he was a member of college : " I think he was rather careless ; many a night have we sat up together and observed without due precaution to health. You are aware that the nights upon which we have the most copious fall of dew, are the finest for astronomical observation. Such nights were, therefore, always selected by us for observation, and not suffered to pass by on any account. Yet these nights are the worst for exposure. We have watched our nebula from dusk until three or four o'clock, following it up over the meridian until it was too low to be observed. Mason seldom wore any thing more than a light cloak, even on the coldest winter nights ; and although we were accustomed to keep a fire in the retiring-room, scarcely could its comforts and a lunch force him away from the telescope."

Under date of February 27, 1840, Mason writes thus to Mrs. Turner :

" I cordially repent of having written to you such a

doleful epistle as was probably my last, and sincerely regret that it has pained you. You must forgive my carelessness of your feelings, and the undue consideration of my own. You wish to be informed of my pursuits and prospects. I am still with Professor Olmsted, partly writing for him, and partly studying on my own account. I receive as much as I can expect, while I devote so much of my time to private pursuits.

"I have not found my fellow-beings more selfish, or faithless, or flinty, than I expected to find them, and I have found some with warm hearts ; and I am accustomed to believe that friendship, in many cases at least, is something more than a name. I have found no promises fail me ; and as I rely somewhat more upon my own resources than upon the promises of others, I am not likely to die of disappointed hope if they should in future prove worthless and faithless. Furthermore, I find a sufficient support in New Haven, and am very unwilling that you should strangely conceive that I am in distress for any matters connected with my present support, or immediate prospects ; still more, that you should aim to deprive me in part of stimulus to exertion by sending on money for which I shall be none the richer two years hence. Yet, at the same time, I feel deeply the intended kindness.

"Whatever slight misanthropic symptoms may have appeared in my case, they have been engendered within myself, and have not arisen from any coldness or neglect on the part of others. I have nowhere placed confidence and been betrayed ; nowhere cherished anticipations that were delusive. My weakness has rather arisen from a dissatisfaction with the wise order of things ; a wish for existence in a world where

the objects of human toil may be somewhat nobler than they are here ; where custom does not impede the affections of the heart, and throw a cold formality over the intercourse of society. Yet this was not it ; these were but foolish day-dreams. I have prospects of fame and distinction as fair as I can wish or expect. But they please me less than they did six months ago. It seems to me but a poor recompense for the strife, the tossing to and fro, the harassing of life with objects of ambition and fame, to be rewarded after death with the empty coldness with which men are wont to pronounce the names of their predecessors, who have made some little figure in the world, if indeed they ever happen luckily to have a name and being in the memory of the future. I doubt whether I have been wise to meditate on the text, "All is vanity," so soon, and whether it were not better to find it out by successive experiences later in life. Perhaps this moody season of self-contemplation has bestowed on me two advantages ;—an early conviction, that the motives which generally actuate men are scarcely worth much consideration or esteem, and that the only sure anchor of the spirit is religious principle ; and further, a belief that with this stay for my foot, I should care as little for the troubles which untoward circumstances, baffled hopes, homeless love, or the world's coldness, might bring upon me, as a man possessed of an ordinary stock of sensibility can care. At least, at present, I fancy I could school myself to a hearty contempt of them generally, however they might immediately affect me with a passing pang. But the world is before me. I must be up and doing while the day lasts. I have thought much, reflected much ; and, more deeply read in the philosophy of life

than I should have been had I not struggled with its adversities, I rise from my dreams with the vigor of morning, yet with the soberness of one that has seen the evening. You will not hear of my tamely sinking down to sluggishness or inactive discontent.

"I am initiating into the deeper mysteries of astronomy a young gentleman of this city who exhibits the utmost enthusiasm in the subject, giving much of the time he can redeem from the hours of business to these studies—a most valuable coadjutor with me in the details of observation. If he perseveres, I fully intend, when director of our future "National Observatory," to continue him as my principal assistant. My telescopes are in a somewhat disjunctive state, and my time cannot be advantageously employed in refitting them under the pressure of my present pursuits. For my own part, I do not need them, while I have the full use of the large college telescope."

In this letter, as in many others, his materials accumulated so much beyond his expectations, that after arriving at the end of the sheet he turned back and interlined the whole, and filled up every nook and corner of the paper except what was absolutely necessary for folding. Although what he says on the subject of being "Director of the National Observatory" was intended to be ironical, yet it probably had a latent meaning in his mind. About this period, Ex-President Adams was calling the attention of the nation to the importance of such an institution; and as chairman of the committee appointed by Congress on the "Smithsonian benefit," a legacy of about half a million of dollars left to the United States by Mr. Smithson, an English gentleman, for the express purpose of promoting

the cause of human knowledge,—he made very able and strenuous though unsuccessful efforts to have this noble fund applied to the purpose of erecting and sustaining a national observatory. Among the youthful breasts that beat with the hope of occupying a niche in this proud temple, probably none palpitated with so fervent an emotion as Mason's. The prospect of obtaining even some humble place at first, with the chance of rising as he should have opportunity to make his conscious merits better known, would have raised his spirits to ecstasy. Among the many useful objects proposed by the creation of an observatory on a scale worthy of our nation, probably the venerable and learned chairman of the committee did not, himself, fully appreciate this, that he was awakening new aspirations in many an ingenuous youth that longed to enter this new and most alluring field for scientific distinction.

CHAPTER VIII.

LIFE OF A RESIDENT GRADUATE.

Alarming state of his health—Various plans for employment—
Portraiture of his feelings—Aversion to flattery—Account of
his friend ——. —Declines an invitation to Roseneath—High
aims and resolutions—Opinion respecting the Zodiacal Light—
Progress of his treatise on Practical Astronomy—Visit to New
York—Intense interest in astronomy—Indifference to all other
attractions of the metropolis—Proffered situation at Western
Reserve College—Scheme for the restoration of his health.

In the letter from which the foregoing extracts are made, Mason alludes to a temporary illness under which he was laboring, which made it necessary to intermit his studies for a short time and take up quarters at his boarding-house, to avail himself of the tender nursing and care of his hostess. The fact was, that, as the spring opened, many symptoms of declining health began to develop themselves; his face was pallid and wan, and disfigured with marks of an extremely bad state of the digestive functions, and he complained of almost insupportable weakness. At this period I found him one afternoon lying on his bed, a thing so unusual as to excite my immediate attention. He complained of feeling very ill, but rose from his bed and staggered into the room which we occupied as a study. He was faint and dizzy, and requested support to keep him from falling; yet he could not without difficulty be persuaded to suspend his studies even for a few days, and it was

only after urgent advice and entreaty on my part that he was induced to take the respite alluded to in his letter.

Mason was now beginning to feel sensible of the precarious and threatening state of his health, and to contemplate some means of support which would be more conducive to its re-establishment. At this time he writes thus to his father at Marshall, Michigan :

To the Rev. Stephen Mason.

"Yale College, March 16, 1840.

"DEAR FATHER—

"The long letter from the family, filled with kindness, came to hand last week. It seems as if the chances of life were destined to keep us asunder in person, though not in heart, for some time longer. I could wish, above almost every thing else, to have a few weeks' leisure from business and study once more at what I could call home. It would be folly, however, in the present state of our family finances, to think of such a thing except as a far-off prospect of pleasant anticipation. I hope, dear father, that your health is rapidly gaining, and that your rheumatic complaints are fleeing before the face of the spring that has so warmly and early opened upon us.

"I have some thoughts of going as a teacher to Virginia, in the neighborhood of my Richmond friends. Nothing definite as yet, and it is not very likely I shall go. I am still very hard at work in New Haven—more for fame than money as yet. I find frequent cause to wish that my constitution was of a stronger and harder mould, and have sometimes speculated on the improvement which might be made in it by a year's farming in

Michigan. I keep in pretty good health by constant and regular exercise, but have frequent hints from within that my digestive organs are not competent to any extraordinary efforts. On this account I cannot do as much as I would. Again, I am somewhat discouraged, by finding that the execution of my plans occupies far more time than was allowed for in the original rapid conception of them; and that eminence is of slower attainment, than an eye unaccustomed to measure the intervening obstacles at first supposed. The same misjudgment occurred to me, that in the natural world is apt to befall one who is climbing a mountain, and sees not the numerous steeps and declivities which rise and fall between him and the summit, that hangs so invitingly near. My most exclusive attention has hitherto been bent upon studies which, especially in early life, are apt to be of less avail in money than in scientific distinction, and I could well sacrifice all I can expect of the latter for the former, while the family and yourself are in so much need of it. On this account, I see at present no better way of accomplishing the object which is of common interest to us, than by turning my attention to teaching, in which department I believe you think I am not likely to be a Lancaster, or a Pestalozzi. But enough of this for the present; I do not know what a few years may bring to pass,—perhaps weal, perhaps wo.

“I am exceedingly gratified to hear from you that sister L. takes such a zealous and affectionate interest in her father’s comfort and the welfare of the family. Nor am I indifferent to the change which she says has taken place in her feelings of late; for although not of the spirit I should be, yet I can feel no otherwise than

thankful if any of my friends or dearest relations choose the good part; and I have at least looked into the intrinsic worth of things so far as to be extremely dissatisfied with any other motives which can prompt me to exertion,—such as ambition, or the desire of gain. It seems to me that the labor, care, strife, and the harassing of life with objects of fame or ambition, are but poorly repaid by the empty coldness with which men are wont to pronounce the names of their predecessors, who have made all this stir, if indeed they happen luckily to have a name and being in the memory of the future.

“I must leave a little space for D. and L., whose signatures in the last letter are to me the more precious, because I have not seen them for some time before. So with every wish for the continued health and prosperity of the kindest and most affectionate of fathers, I am

“Your affectionate son,
E. P. MASON.”

The following letter to a female friend at Richmond, exhibits the state of his feelings at this period:

“Yale College, March 21, 1840.

“COUSIN M——,

“It is sweet, on the dusty road of life, occasionally to meet with such a pure draught of friendship, such a grateful ‘cup o’ kindness’ as was your letter to me. If I could have answered it on the impulse of the moment, I should have expressed nothing but unmingled pleasure and warmth of feeling. But alas! I have set up for ‘your philosopher,’ and must cavil and reason as much,

and feel as little as I can. Thus, suppose Berzelius, or any other most incorrigible chemist, on traversing an oasis in a wide wilderness, to be presented by some fair damsel—the nymph of the fountain, if you please—with a draught of her crystal stream. The knight of the furnace and crucible finds himself inexpressibly refreshed by its coolness; but, not having learned, in his laboratory, all the laws of etiquette, instead of thanking her mythological divinity with decent courtesy, he is prompted by his ruling passion to the request, that she would allow him to analyze her precious waters, to ascertain their mineral virtues, and to put them to the torture of all the chemical agents with which his science supplies him. So the after thought, in my case, is to take up your letter in the style of a modern reviewer, and furnish a running commentary on it. It strikes me by the way, that the comparison or allegory above imagined is, in the style of conception, equal to any thing in ancient or modern literature.

“Your impressions concerning the variety and importance of my occupations, and the value of every moment of my time, are very correct. My letters, I hope, have impressed my friends with a deep sense of these momentous realities. I believe, on the receipt of your present epistle, I appended to a letter just going to the office, an additional clause expressive of the enormous world of business that, Atlas-like, I have on my shoulders, and calculated to deepen your previous convictions. But if this belief has deterred you from making ‘demands on my valuable time,’ I heartily regret that any idle assumption of importance on my part, should have deprived me of the opportunity of having my time occupied at once so agreeably, and to

so good purpose. For what can be more important, my dear cousin—to throw away this tiresome mock heroic—than to cherish those feelings, and to guard that friendship, which sweetens toil and animates the sinking spirits? I therefore do not make the writing of a letter to my best friends a matter of a leisure hour, or a passing recreation, but consider it of all my ‘occupations’ the most important; for nearly all besides this are selfish, and therefore trivial, and of little value to me except so far as their results may please and gratify those whose gratification, and whose interest in me, I prize more than any careless or momentary approbation from the so-called world. I am ill-satisfied with the newspaper, business-style of an epistle, with which an hour or two snatched from my studies would furnish me; but rather delight to sit down, and gradually estrange myself awhile from books and mathematical lore, till by-gone days come clustering freshly on my memory, and I can leave the painful straining of the mind at what it with difficulty comprehends, to enjoy the unrestrained intercourse which long associations teach it at once to understand and feel. Then I can write to you as I would; nor at such times am I apt to believe that the highest flights of science in the firmament or elsewhere, can inspire thoughts worth the simple kind word with which one fellow-mortal can cheer another on their common pilgrimage. Such a kind word was your letter; and need I entreat, that I may not be debarred from such a dear privilege by a stumbling-block, which, to confess the truth, was of my own setting up?

“But further, my good cousin, I have to take you to task for a certain few phrases of compliment on my intellectual proficiency (not to burden them with a more

odious appellation) with which you were pleased incidentally and needlessly to lengthen your letter. Now I take it submissively, as a kind of practical instruction in one branch of science of which you are my acknowledged teacher and model. But you know that paying compliments was always that very department of etiquette which I could least bear to be *obliged* either to bestow or to receive, however I might be disposed to perpetrate the thing occasionally, on the impulse of the moment. So that it were prudent in you to initiate me at first, when I am less obstinate; especially, as were I fairly taught in the use of this weapon, so dangerous to humility and virtue however directed, my first lessons might very possibly be in the way of retaliation on my teacher.

“And is this the ‘happy valley’ you speak of, or is it a dream of what we would have, rather than of what is? I hope with a trust bordering on certainty to enjoy at some not distant date with you that love of nature which cannot but be inspired by scenes like those of which you speak, and which, although I have heard of them before, yet never with such a longing towards them. But I cannot tell when we may so meet in the future—that future, cousin, upon which you look with no loving eye. I will not ask why, but rather wish, that no prospect may ever be brighter than that from which, as yet too dimly seen, you turn away in doubt and mistrust; yet a doubt so slightly exposed to view, that in the silent reproof of a single sentence, I feel utterly ashamed of the part I have been acting, in peevishly fretting at what is and must be, and giving my friends the full benefit of such mental exercises. Instead thereof, I will fill all my future with hope, bright,

undimmed hope, whether to dawn into reality or not, provided you will do the same, and enforce precept by example. For if the bright horizon of one like yourself must be clouded, what could I expect from mine?

“I will tell you more of the story of ‘Churchill,’ as you are pleased to name my friend —, at some time when matters shall be more fully developed. He has been chosen poet of his class, and will deliver the usual valedictory at the middle of next term, when the Seniors leave. He is very enthusiastic, and withal means to give to his country whatever talent he possesses, and not go wandering like some of our poets to Greece, or back into the past, after heroes, and events, and characters which our own have eclipsed. He is now making a little digression into astronomy. We have walked much together for a day or two past, discussing in conversation the probable infinity of the universe, and skirting its furthest visible boundaries, to gather strength for the imagination to bear the thought of what is beyond.

“I am really glad of the new arrangement by which Mr. C. makes his home with you. But wait the blooming spring and ripe summer, and I know that Roseneath, so beautifully peaceful with its sweet twilight evenings—you remember—will make him resolve to shake the dust of Main-street at once off his feet and his heart. Give my most cordial love to him, and tell him I have received his letter; tell him that I am well satisfied as the matter stands,* for the temptation of a residence near to Richmond would have induced me perhaps to forego

* Alluding to an unsuccessful effort of Mason's to obtain a family school near Richmond.

the prospects of better situations. I shall write to him before long, and take this opportunity for the more instant acknowledgment of his letter, and of my warmest thanks for his kindness.*

"I shall also write to aunt Turner soon, but have spun out the thread of my discourse too long now to cut it short, and begin anew. This simile is borrowed from the domestic department, in order to suit feminine associations, and I was going to say—comprehension; but that would have been very uncomplimentary. It also reminds me that your needle-book has been of very great use to me. In spite of the contempt which I affected towards it, before I was sure of its destination, it now occupies the first place among the numerous specimens with which college students nearly every vacation stow their cabinets. This enviable supremacy it would hold in virtue of its recommending itself to my philosophical taste by its peculiar neatness, and by its adaptation to its end, even did it recall no thought of the giver.

"My 'astronomical lecture' I have put off till I believe it must be put completely out of the letter. I promise one next time, as dry and statistical as your heart can desire.

"Your affectionate cousin,

E. P. MASON."

Tenderness for the feelings of his distant and beloved relatives, conspired with his habitual resolution, to in-

* The gentleman here alluded to continued to give repeated and substantial proofs of his friendship for Mr. Mason by the most generous pecuniary aid.

duce him to pass over, with but slight allusion, his present very infirm and threatening state of health. A hollow consumptive cough, increasing from day to day, betrayed another symptom of his approaching fate. Still he kept up his astronomical labors and correspondence, almost without remission, and nothing could convince him that these alarming affections were any thing more than an irritable state of a depraved digestion. In addition to the progress of a fatal disease, another occurrence contributed at this time to depress his spirits. The publishing committee of the American Philosophical Society, at whose request he had consented to communicate to their Transactions his paper on the *nebulæ*, expressed dissatisfaction with the expenses incurred for the engravings, which were executed under his own eye, with great skill and fidelity, by an accomplished engraver of New Haven, Mr. Hinman, but which, in the opinion of some of the committee, might have been done on terms more advantageous to the society, in Philadelphia. The extreme care and nicety with which Mr. Hinman had engraved the plates, occupied so much time that he could not afford them, on the most reasonable calculation, at a less price than one hundred and fifty dollars. This sum the committee were unwilling to pay; and the prospect of having the whole or a large part of it to discharge himself, with resources inadequate to his daily expenses, distressed Mason exceedingly. However, through the exertions of his friend, Mr. S. C. Walker, (at whose instance this paper was communicated to the Philosophical Society,) the matter was finally adjusted to the satisfaction of the parties.

A slight intimation of Mason's illness was enough to

awaken the maternal solicitude of his affectionate aunt, and to occasion a repetition of her invitation to him to come and recruit his enfeebled frame in the warm atmosphere of friends to whom he was so dear. It is to be lamented that he did not at once tear himself from the severe and laborious studies in which he was incessantly occupied, and fly to a home where remission from mental toil, and the kind offices of an affection truly maternal, might have prolonged a life so valuable to science. The following letter will show his situation and feelings at this time.

• *To Mrs. Harriet B. Turner.*

“Yale College, April 20, 1840.

“DEAR AUNT—

“I believe my last letter was to cousin M., and in the due adjustment of the debt. and credit side of my accounts of correspondence, this one should be to you. I owe you the warmest thanks for your kindness in offering me a home at Roseneath, which I can only express in words, and thus by letter. I know full well that there is no place on earth where I could more realize that word ‘home,’ (except my father’s house,) than at Roseneath; and in the spring-tide of the year, to escape from the solitary table and lamp to mingle with friends tried of old, and in the most delightful of places I have met with in my experience of nature’s *artificial* beauty, would be sweet indeed, and would much relieve that weariness of study which a short vacation dispels. But I need now every fragment of time that I can command, to accomplish the purposes of the present year; and duty, urging to promptitude of action, will at present listen to no proposals from in-

clination, to sport away the summer in recreation. I do not know that I shall *do much*; but it is very important for the sake of forming my habits of action for years to come, (*should they come to me*), that I should do *with diligence* whatever I attempt. By this I mean, not to sit down with intense application over wearing studies, with mistaken views of economy of time; but to carry a spirit of promptitude and decision to such an extent into my plans of study, exercise, and recreation for this year, that they shall not fail me hereafter. If I idle away my time now, it will be ominous of the future. So, in spite of the kind assurance 'that there is room enough for myself as well as Mr. C. at Roseneath,' and although I already know that there would be ample room for me in the *hearts* of yourself, and my other dear friends, I shall be, for the present, compelled to ask and claim a place only there. I can tell but little that is definite about my plans for the year, except that I have a prospect of sufficient employment. I shall write more definitely from New York, where I shall be two or three weeks hence.

"I have had no vacation since I was with you, and cannot immediately make one for myself. Early in June, however, I have engaged to take a pedestrian tour of at least a fortnight's duration, with some of my choicest friends, to extend up the Connecticut river, embracing its glorious scenery, which will afford some play for the spirits and fancy as well as the blood.

"It must be very pleasant to you that you are able to give Mr. C. an asylum from the dust of the city, and a taste of the genuine spring of rural life; and I therefore the more regret my inability to join you all, and swell the circle. As Coleridge says,—

My eyes make pictures when they are shut,—
I see a garden, large and fair,
A cottage, and a little hut,
And me, and thee, and Mary, there.' "

This letter concludes with some information which his aunt had requested, respecting the *Zodiacal light*. In expressing his views respecting the physical nature and constitution of this mysterious body, he favors the idea that it is a portion of nebulous matter surrounding the sun in a great ring, and is the residuum of the primitive nebula, out of which, according to the celebrated, but in my judgment, visionary hypothesis of La Place, the whole solar system was formed.

The proposed visit to New York alluded to in this letter, was for the purpose of superintending the stereotyping of his article on Practical Astronomy, which was now nearly finished. When he began the composition of this article, the preceding autumn, it was expected to occupy him for a few weeks only; but his constant attention to the observation of all the current astronomical phenomena, and the preparation of his article on the nebulae, with an extensive correspondence, had so retarded the progress of that treatise, that on the first of May it was still unfinished. He supposed, however, that he could easily finish it while the parts already completed were in the process of stereotyping. It was therefore agreed that he should go to New York, and pass two or three weeks, which was deemed a sufficient time for stereotyping his treatise. The moderate labor required for this duty, and for the preparation of the few remaining sheets, with the various sources of novelty and interest in the metropolis, would, it was supposed, be favorable to the renovation of his

health and spirits, and at least serve the purpose of detaching him from the severe occupation which he could not be persuaded to remit while at home. But whatever hopes I had indulged respecting the favorable effect of this excursion upon his health, and upon the completion of a work in which I was personally interested, they were soon given up on my finding, that the moment he set his foot in New York, he had renewed and extended his acquaintance with several practical astronomers, and soon after engaged with great alacrity and zeal in nocturnal observations at the private observatory of Messrs. Blunt, at Brooklyn; and had concerted with these gentlemen a plan for ascertaining, by means of a set of chronometers recently received by the steamer from England, the precise difference of longitude between New York and New Haven. The nature of his employments during this short interval at New York, may be learned more particularly from the following letter.

To Mr. Hamilton L. Smith.

"Yale College; June 6, 1840.

"DEAR FRIEND—

"Having an opportunity to send to you by private conveyance, I will vouchsafe a few lines, albeit highly indignant that you have not answered my letter. I hope to hear from you very soon, for bethink yourself how much I must needs wish to know what my old classmate and partner in astronomy is doing, and whereto he is turning his star-gazing propensities.

"I have been for three or four weeks past resident in New York, engaged in stereotyping a work on Practical Astronomy, which I will send out to you

shortly. While there, I had made arrangements for coincident observations on meteors* with Messrs. Herrick, Bradley, and Haile; but this plan was interrupted by the opportunity which was afforded me by Messrs. Blunt of sending five chronometers up to New Haven, the same sent out from Greenwich for the third experiment on the longitude of New York. They came and returned in the British Queen—were compared with the heavens for several nights in succession by Mr. Bradley in New Haven, and by myself at the Brooklyn observatory. The observations I am reducing collectively, and the result will be a very accurate longitude of New Haven, compared directly with Greenwich. The observations on meteors were so far broken up by those necessary to determine the errors and rates of the chronometers, as to be nearly useless.

“While at New York, I saw a beautiful altitude and azimuth instrument made by Troughton and Sims, belonging to Columbia College. Mr. Schæffer, the librarian, and myself, locked ourselves in the philosophical chamber, and put it together for the first time since it crossed the Atlantic. Reading microscopes were adjusted on the altitude and azimuth circles, by which seconds were read off, and tenths estimated. The circle being clamped, we could agree in reading off any angle within two or three tenths of a second.”

He proceeds to give his friend a particular description of Mr. Blunt's observatory at Brooklyn, which, limited and imperfect as it was, was still superior to

* For the purposes of longitude.

any he had hitherto enjoyed, and afforded a fascinating but dangerous attraction for a large portion of his evenings. Indeed, nothing could be more farcical than the idea of "going to New York to recruit." Every moment of his time by day, and late hours at night, exposed to the damp air, were engrossed by his master-passion, except the small portion of time which he passed with the stereotyper on the special business of his visit. Meanwhile, through the delays of the artist, as Mason thought, but on account of the incessant engagements of Mason on the objects already mentioned, as the artist thought, the stereotyping dragged slowly along, so that at the end of the period assigned for its completion, only a small part of the work was done. It is said that the benevolent Howard, when he first visited Rome, was so intent on his great object (the amelioration of prisoners) that he never visited the Coliseum; in like manner, our young astronomer not only was proof against the blandishments of pleasure, ministered as they are in a large city, in the most enticing forms, but seems actually to have seen nothing that excited his interest or curiosity but the fellowship of a few kindred minds, the delightful inspection of finely executed instruments, and the observation with them of the nocturnal heavens.

To his coadjutor at New Haven, Mr. Francis Bradley, he writes in exultation at his unexpected facilities for observation. "You had better observe moon-culminations every night, that is clear, this week. I shall do the same in all probability; although, if I should not, which is scarcely supposable, yours will be valuable on the longitude of New Haven. I have a four or five foot transit instrument with splendid adjustments and

circle—altitude and azimuth instrument, &c., &c., and the key of the observatory (Mr. Blunt's) at my control, and he will send over chronometers, lamps, telescopes—every thing that can be wanted from the city. Mr. Schaeffer, librarian of Columbia College, strongly interests himself in procuring observers to assist me in next week's labor. So never fear that active co-operation will be wanting here."

In addition to all the engagements during this "recruiting season" indicated in the preceding letters, he incidentally mentioned in his letters to me numerous others; as experiments on polarization of light, which he witnessed for the first time through the kindness of Mr. Schaeffer—the examination of the latest volumes of the Philosophical and Astronomical Transactions, which he had found in Mr. Blunt's library—and letters to numerous friends and astronomical correspondents. It is not surprising, therefore, that when he returned to New Haven, about the first of June, his appearance was not improved.

The necessity of increasing his earnings, even for his own support, now became imperious, and the further desire of assisting his father, whose pecuniary circumstances were straitened, united to prompt Mr. Mason to seek for more productive employment. His friends who were near him, were ready to lend him their influence, and he was negotiating for a tutorship in a highly respectable college at the West, for a professorship in a college at the South, and he had some prospects of a permanent situation in a northern university. But with so many flattering prospects for the *future*, none of these situations were *immediately* available; and his want of funds being urgent, he resorted to sev-

eral temporary expedients for present relief. He formed a small class of students in practical astronomy, who were to accompany him in the actual labors of the observatory, and he spent several hours daily in a Latin school, in the capacity of assistant instructor. Some of the "prospects" above alluded to disappointed him in the result; but there was still proffered to him a situation in Western Reserve College, where the inducement arising from the society of Professor Loomis, whose tastes and pursuits were so congenial to his own, and the free use of the observatory lately erected at that institution, rendered the place particularly attractive to him. To this he alludes in the following letter to a young female friend, then residing in a neighboring state.

"Yale College, July 6, 1840.

"FRIEND M——.

"I shall allow you a much greater show of amiability than most young ladies possess, for your kindness in answering at all a letter so little calculated, by its promptness and style, to please you. I had begun to suppose that the pride so natural to your sex, had construed into cause of mortal offence, a course of conduct on my part, which, however severely you may censure the wayward and unsocial disposition that led to it, I pray you impute not to the slightest thought of neglecting or offending you. I am but too much indebted for the small share of social pleasure that I enjoy, to a cherished intercourse with a few friends like yourself, willingly to forego the gratification of exchanging thoughts with you.

"I heard long ago of the death of Miss D. I was

then at the South. I knew most intimately the gentleman to whom she was engaged,—one whom I loved from a boy ; and calling brother then, have experienced from him all the care, friendship, and aid, that an elder brother could give.

“ You ask me of your cousin, Miss M—— S——. My acquaintance with her is but that of a few and short conversations, in the midst of company. Although not quite so morose and sourly misanthropic as when I last wrote to you, I have mingled but very little with the female society of New Haven, and have given many of my former acquaintances some reason to complain of me, although I am all the while promising myself a gradual reform in this respect. So I must judge of your friend by report, which in her case sings nothing but praise. If she have the common share of vanity so liberally awarded to the better part of creation, she may with reason express much satisfaction with New Haven, for there are few here, even among her own sex, who would deny her a marked superiority in female virtues and mental culture, no less than in the accomplishments of fashionable life. But caution bids me hold up the reins of my flattery, for who knows but you might turn traitor, and bring me into trouble. I speak but from hearsay, for it is utterly against my principles to mouth so much compliment of my own manufacture.

“ I shall probably go to take a situation as tutor in Western Reserve College in September, unless offers of a permanent situation in a college further east should be renewed to me ; and I believe I can make the road such as to allow of my making you a short visit. And I hope to see you with countenance as of old ; for though

I know that sickness or disease can do little to injure you, while it but points you to a brighter hope, yet I have been much grieved at hearing that you had seriously suffered from the attacks of a severe malady; and I sincerely trust that as your letter speaks of it as a trial that is past, it will long continue so.

"I have spent some three or four weeks lately in New York, employed in the process or operation of becoming an author; an experiment usually, whether with or without reason, marvellously fostering to the pride of intellect; though the time has passed when such a circumstance would have foolishly moved me. For I look upon ambition as a motive very little worthy of an immortal soul; and indeed many of the other motives to which mankind in general, and with them doubtless myself, bow down. I do not now, and really never did, ask shelter of any vain philosophy; nor do I care very much for, or appreciate highly, any other stimulus of thought and action, than that which considers a longer period than the swift frail moment for which our earthly existence lasts. If you ask why, valuing so lightly other objects of existence, I do not at once devote myself to ends that I feel to be as noble as others are worthless; I answer, that *habits* of acting from selfishness, clinging for years, are wound around me; and although I often despise and hate them, it requires a stronger effort than I have yet made to nerve myself to the determination, that love to my Maker, his eternal plan, and his cherished creation of beings, shall help me in the long struggle against these fastened habits. You will not take up the echo of a desperate moralizer in application to this strain, for I owe to your kindness this single thought of what I should be, and I

owe it to myself to assure you that my *mind*, at least, is in love with virtue rather than philosophy.

“Sincerely, as ever, your friend,

E. P. MASON.”

Mason had therefore nearly concluded to accept the offer from Western Reserve College, when the development of new symptoms of consumption, an increasing cough, great debility, and gradual emaciation, with profuse night sweats, admonished him of the necessity of suspending all intellectual labor, and led him to recur to an idea he had entertained several times before, of spending a year or more on his father's farm in Michigan. His final reply to Professor Loomis was as follows:

“Yale College, July 21, 1840.

“DEAR SIR—

“I have finally concluded to decline the offer you have made me, although, I can assure you, with much reluctance. I find my health has been a little injured by very close confinement the past year, especially during the last spring. It has been a question with me whether a single year snatched from my literary pursuits, and devoted entirely to the most active exercises, as farming and hunting, would not benefit me in health and constitution much more than would repay the sacrifice of time. Some symptoms of a pulmonary complaint I have lately experienced decide me, and my next year will be spent in Michigan, where my father resides. Doctor K., whom I have consulted, thinks that with time for continued and vigorous exercise, I might go on safely with such literary duties as would be required of me in a college like yours. But, per-

sisting in a sedentary course of life might, very probably, cause me in a year or two regret for my choice, when too late; while the present course will at all events improve my health, (if it can be improved very much,) and render me much fitter for active engagement in scientific pursuits afterwards, and much more capable of enduring mental labor. At the same time that I have chosen thus, because I think it the safest and wisest course, it has not been without much regret at being compelled to relinquish the society and opportunities I had promised myself at your institution. If I can possibly visit you on my way to Michigan, I will do so. Yet I fear that a long stay at Hudson would involve some risk of the contagion, which seems to have rendered your once flourishing 'bachelor's hall' empty and deserted. I shall feel still more solicitous for Professor S. when located at your college, as there seems to be there a marvellous facility of losing one's personal identity, and acquiring a certain duplicity of character, which it doubtless requires much caution in a person still retaining some singleness of heart, to avoid.

"I shall be anxious to see your forthcoming papers, and thank you for your kindness in promising to send me copies. You say you have several 'on the stocks,' which I hope will be launched as rapidly and as successfully as their predecessors. I have a number of papers arranged and finished in mind, but requiring much leisure to write them out. Mine, therefore, are *all* on the stocks; and as the workman must have his vacation, they must remain there for a year or more.

"Very sincerely yours,

E. P. MASON."

"PROFESSOR LOOMIS."

The pleasantry with which our young friend alludes to a recent change in the domestic relations of his correspondent, is a specimen of the delightful cheerfulness and buoyancy of spirits, which he maintained under all his present sufferings and dark prospects—a frame of mind which he supported to the last.

On the same day he wrote to Mrs. Turner, stating his feelings and his situation more fully; betraying, indeed, a consciousness of the immediate necessity of changing his habits of life, but still flattering himself that his complaints were only the result of a derangement of the digestive organs, and his pulmonary affection very slight, whereas symptoms of a fixed consumption were now too palpable to be mistaken.

To Mrs. H. B. Turner.

“Yale College, July 21, 1840.

“DEAR AUNT—

“For some cause or other, whenever I sit down to write to you, I always turn egotist. Whether it is that the strong interest you express in my plans, movements, prospects, and feelings, leads me to satisfy you with a full and particular account of my own individual interests, or whether, becoming too conscious of the estimation and affection cherished towards me at Roseneath, I look upon myself as really deserving so much kindness, and am foolishly exalted in my own eyes, I will not try to decide. But you will find this letter, like others, rambling on discursively concerning myself and my prospects, with little heed to any thing else than self. I forewarn you, that, although well on the road to manhood, you are in great danger of spoiling me. I think I should have been completely spoiled already,

like an indulged child, and made thoroughly selfish, through over kindness on your part, had it not been for a most uncommon share of resolution, of native firmness, of innate self-denial on my part, that has preserved me from so great a misfortune.

"But, aunt, in trifling thus, I have almost forgotten that you may be yet sick, and nervous, and in no mood to relish this nonsensical railery, or may even think it unkind. So I will betake myself to what I told you the letter would doubtless consist of—my own plans and intentions.

"I told you in my last letter, that I had one or two offers of collegiate offices. That of the University of —, which I requested should be considered as confidential, is a failure. The trustees will not be able, at least this year, to command the funds necessary to found a new salary, as they had proposed to do. The opportunity at Western Reserve College is a fine one, and I have, until within a few days, thought very favorably of it. I have, however, been for a long while considering, whether a year or more, snatched from literary pursuits, and given up to vigorous exercise, and a hardy life of farming and hunting, would not so much improve my health and amend my constitution, as to be worth the sacrifice of time. Some slight symptoms of a pulmonary complaint, (caused by a previous disorder of the digestive organs,) which have appeared of late, in consequence, probably, of too great confinement to my table and pen for some months past, have decided me. I have consulted Dr. K., and ascertained pretty definitely the state of my disorder. He thinks that I might go on safely with literary pursuits, if, as at Hudson, but little confined;

and allowed plenty of vigorous and exhilarating exercise ; but, at the same time, he would not be sure I could do so. I am very certain that *entire* freedom from the anxieties and confinement and business of study, and the active exercise of a farmer, or hunter, would be by far the safest course, and one the effect of which on my health, could never cause me regret ; whereas, I am not by any means, confident that my present mode of life would be very consistent with sound health, without such an interval of respite.

“I have therefore decided, that if I can in any way compass this plan for one year, or two-thirds of a year ensuing, I will do it. I have not thus made up my mind without many struggles against immediate interests and pecuniary prospects, (for I have done more this year for fame than for profit.) I therefore had to make this determination against strong inclinations, and regardless of consequences.

“Now, if I can get through next year by any kind of management, and I thereby acquire hardihood and vigor of constitution, I know well that I shall accomplish more, with the same amount of effort, and act with far more energy and spirit, than I possibly can now. And if I should fail in this way to recover my health, it will show that to have gone on as at present, would have been next to madness. I would write more, but I throw aside almost every thing now as far as I can, for exercise, having been able to do this for two or three weeks past. ‘I maun awa’ to the hills.’

“Since writing the above, I have been spoken to about taking a professorship of mathematics in the college at —, with a salary of one thousand dollars. The President will be here next week, and I shall see

and converse with him on the subject. Should the situation be fully offered to me, it will be a great temptation to abandon the resolution I have formed. I think in that case I shall strongly endeavor to secure a half year or a year's delay in preparation, before entering on the duties of the professorship. At any rate, I shall not take the offer unless I can command very great leisure for exercise. It is worth considering, that with a thousand dollars, I can avail myself of the more expensive as well as the common modes of exercise, at the same time that I am paying off my debts, and transmitting money home, for the relief of my father. On the other hand, I have no means of accomplishing my present plan, without calling on my friends for assistance, which perhaps it will be inconvenient for them to render. On this account, I have been greatly in doubt, whether I ought to decide as I have done ; and should not have done so, except from a firm conviction of the wisdom of the choice. If I must ask my friends for aid, I shall do it with the more confidence, because I am now very well assured of obtaining good situations, whenever my health will allow me to enter any one of them ; for these three offers have been made me apparently on account of reputation arising from works and papers not yet fairly published, and I may reasonably expect, that their circulation for the ensuing year, will so far increase my reputation, that on returning to employment, I shall meet with at least as favorable and frequent offers. My only apprehension of not being able to repay Mr. C. and two or three other smaller debts, now is, the possibility of failure of health from too close study.

“ You will see from my present letter, that my plans

must be for a week or more immature. My present engagements are as follows. I continue in New Haven nearly or quite until Commencement, that is, for about three weeks longer. I shall then make a pedestrian excursion into Rhode Island with a friend of mine who resides there, and for three or four weeks shall do nothing but run about all day with gun or fish-pole, and come home tired at night. I shall then close up all unfinished ends of business as quickly as possible, and set out for Michigan. Having now been confined a year at New Haven, I am glad to embrace the first opportunity to leave town and inhale the cool air, and ramble over the long ranges of the New England hills. My breast pains me, and I must leave off.

“Ever yours,

E. P. MASON.”

CHAPTER IX.

EXPEDITION TO MAINE WITH THE 'BOUNDARY COMMISSION.'

• Motives that induced him to join the boundary expedition—Hurried preparations—Excessive labors—Journey—Adventures.

At the moment when the plan of our young friend seemed to be finally and unalterably settled, a new and sudden turn was given to it by a letter from William C. Redfield, Esq., of New-York, well known for his ingenious investigations on the "Laws of Storms" and various other publications. Mr. R. had become acquainted with Mason, and regarded him with deep interest, and therefore took great pleasure in opening to him an enterprise which he knew would be extremely consonant to his taste, and supposed might be favorable to his health. Under date of August 3d, he writes to him thus: "There is a commission organized by the government of the United States for exploring the disputed boundary between Maine and Canada, which is to commence its labors immediately. Recollecting your conversation on the subject of a sporting campaign, it has occurred to me whether we cannot figure out a place for you under the commission, if you should think it desirable. The commissioners are Professor Renwick, of this city, Capt. Talcott, U. S. Engineer, and Professor Cleaveland, of Maine. They are to meet at Portland, on the 7th instant, and will commence their duties immediately. I have applied to

Professor Renwick on the subject, and find that he is not authorized to appoint but two assistants, and that he has already secured these. He desires, however, that you should join the expedition, and says that if you will meet the commissioners at Portland on the 7th, he will recommend your appointment.

“There will doubtless be a good deal of observation carried on under the commission, in connection with the explorations, astronomical, barometrical, and geodesical.”

Nothing could have come apparently more suited to fulfil all his purposes, than this opening. The society of the distinguished gentleman at the head of the commission; the opportunity of perfecting himself in geodesical operations; the pleasure of pursuing, under a new and practical form, his favorite astronomical observations;—these severally presented motives too attractive to be resisted. He felt his strength return in the contemplation of them. Moreover, this plan seemed to possess the very elements of that which he had before devised for the recovery of his health;—a life in the woods, exposed to moderate hardships, increasing as his strength improved—“exhilarating exercise” over wild mountains and through dark forests—a total change in his habits of living—an escape from the toils of the study and the pen;—such were the visions which now presented themselves to his ardent imagination. He was encouraged in these reveries by a college friend, of the graduating class, who had once himself been brought very low by disorders very similar to Mason’s; but betaking himself to the life of a hunter in a new country, and passing a few months roving over woods and mountains, “camping out by

via New York. Having business in the city, I accompanied him thither. The fatigues incident to his hurried preparation for the expedition left so strong an impress upon his wan and emaciated figure, as to attract the attention of strangers when he came on board the steamboat; and nothing would have seemed to them more incongruous, than that this individual was just starting to join a commission for exploring the Maine boundary. To myself, indeed, it appeared almost equally incongruous, and I would fain have dissuaded him from the undertaking, had I not felt assured that the effort would have been unavailing. I hoped, indeed, that the repose of the voyage to New York, short as it was, with a change of scenery and objects, would have afforded at least a temporary amelioration of his exhausted appearance; but we had no sooner got under weigh, than he retired to a corner of the cabin, took his writing materials out of his trunk, and spent nearly the whole time of the voyage (six hours) in completing some mathematical calculations in which he was engaged. The importance of finishing these before he left for the expedition, seemed to him urgent, but this was probably not the only reason for his betaking himself to study; to lose himself in studies so dear to him was a refuge, though a delusive one, from pain and languor.

Mason took the evening boat for Providence, and the next day wrote to me from Boston, apparently in renovated spirits. "Although (says he) I felt pretty wretched this morning, I feel now, after stirring about a good deal, and meeting three of my classmates here, quite another man. Mr. S—— has joined me, ready

with every thing but the promised rifle. I shall leave for Portland this evening."

We next find him in New Brunswick, whence he wrote to Mrs. Turner as follows.

"Woodstock, New Brunswick, Sept. 3, 1840.

"DEAR AUNT—

"I fear I have but a few moments to write to you, unless I keep this letter until I reach the Great Falls, after which we shall leave the inhabited world behind, and shall see no man, or sign of man's existence, except possibly a few Indians. To show you how strong a necessity kept me from writing to you before leaving New Haven, I need but mention, that I was under obligation to finish my Practical Astronomy before my departure, at the risk of much loss to myself and Professor Olmsted; that my day of promised departure was the 24th of August; and that to complete the copy for the hands of the stereotyper in New York, I was obliged to take the New York route to Boston, write copy on steamboat all the way down to New York city, and take proofs on with me to Boston. Furthermore, I left myself but twelve hours to prepare for the campaign, arrange for sale of furniture, pack in boxes the numerous books and chattels I should leave behind, and close up all my bills and accounts in New Haven. Since my departure, I have been so constantly travelling, and laying in further stock of thick clothing, that I have only had time to write to my father, who does not yet know that I am on this cruise, or even that I have any thoughts of giving up literary pursuits for a season.

"Now, aunt, I really feel grieved that you should have so little confidence, as to believe me incapable of

taking thought for myself, or care for my health, and that you should still continue to consider me the same child that I was when with you from eight to ten years of age. As far as love and affection are concerned, I am willing that the child-like simplicity of that time should remain ; but I *was* much chagrined at your writing to Doctor K., although I deeply felt the kindness and anxiety which prompted it. Do you think I would take such decisive measures with regard to the abandonment of study, and the pursuit of vigorous health, without consulting a physician, and joining my own experience of the nature of my constitution, and the regimen and discipline it needed, with the advice of those who could reason better than I could on the information I gave them ? So far from it, before the arrival of your letter, I had consulted Dr. K. twice, and had laid my plans accordingly. As to the expedition I am now upon, Dr. K. expressed himself to me and to others as of opinion that it would prove favorable to me. To show you how truly I have judged that the slight cough I have had for some weeks, depends mainly on the severe dyspepsia under which I have suffered, and very little on any changes of weather or exposure, I will give you a rough sketch of my health thus far on my journey. I found on reaching Bangor, Maine, that ordinary stage and railroad travelling did not benefit me, but on the contrary I was rather worse. Every evening after riding, I felt tired, indisposed to action or motion of any kind, chilly, and disposed to coil up in the corner of some sofa, and feel miserable from the effects of indigestion, or else to go right to bed ; my cough, too, worse if any thing. So from Bangor, instead of going one hundred and thirty miles

to Woodstock, my present night's location, on the St. John's river, I determined to go forward with a slow team of boats, by which means I could walk every day as much as I chose, or could easily accomplish, and jolt by wagon the rest. So for five days, I averaged thirteen or fourteen miles per day in walking; and although three or four times I got well wet, and kept wet and damp till we stopped for the night, yet at night I have found myself in spirits, bright, wide awake, fully alive, warm, less fatigued than before, and troubled much less with dyspepsia, able to spend a half hour or so in writing to father and yourself, instead of coiling myself away to feel sick—cough, too, better, in spite of so much exposure—it follows the changes of dyspepsia, and dyspepsia cannot live long in the woods we are going to tramp over. So you see the effects of the first few days of this kind of life.

“To-morrow we boat it up the St. John's—camp at nights in tents, and sleep in blankets. We go up to the head waters of the St. John's, principally those of the Aristook branch, and settle the location of the mountains and highlands in that neighborhood. When the snow beats us out, which will probably be not far from the middle of October, we shall, I believe, drag some of the boats over to a branch of the St. Lawrence, and running down to Quebec, find conveyance from thence to New York. During the winter we shall be engaged at New York in reducing and calculating the observations made in the fall.”

The remainder of the letter is occupied in details respecting sundry personal matters; but the whole is indicative of the exhilaration which often deludes the

victims of this fatal malady, by kindling in their hearts a sudden flash of hope, which, for the moment, nerves them with preternatural strength, and inspires them with unwonted resolution.

Notwithstanding this long letter to his aunt, written after the fatigues of the day, he had during the similar intervals of several preceding days, written a letter to his father three times as long, giving him a minute account of all his movements, including a faithful narrative of all that had befallen him for the preceding month. As much of it is the same with the matters recited in the preceding pages, it will be unnecessary to transcribe any thing more than an extract; yet the whole letter, which is now before me, is an extraordinary production, written as it was by a poor exhausted suffering youth, far from home and kindred, in moments snatched from the time allotted to repose, after days of weariness and pain. I hardly know which most to admire, the beauty and admirable correctness of the chirography, or the dutiful spirit which it breathes, or the wonderful resolution which supported the dear sufferer. The letter opens with this beautiful tribute of filial affection:

“In the first place, I must congratulate you, dear father, on that happy change in your prospects by which the comforts and happiness of domestic life are again secured to you, and the care and attention which scarce any but a wife can afford, are once more yours, whether in sickness or in health. I rejoiced when I heard of it; for the picture of my father sick, in pain, despondent, lonely, and dependent on the indeed assiduous, but yet inexperienced attentions of a single daughter, pained me. I have now no fear but that, with occasional hours

of sadness for the memory of one to whom both of us owe a deep debt of gratitude and love, you will resume your former cheerfulness, and hope in the future. As to my own feelings, I shall not be ashamed but rather proud to call any one mother, or any sisters, whom my father chooses as wife and daughters; and I assure you I long not a little to reach home, and welcome by these names my new friends."

CHAPTER X.

CONCLUDING SCENES.

Return from the northeastern boundary—Low state of health—
Visit to New Haven—Last pages of his *Practical Astronomy*—
Journey to Virginia—Rapid decline—Death—Character.

I HEARD no more from the dear youth until a letter from him, dated at New York, October 29th, informed me of his return to that city. He says: "I write immediately, to let you know of my arrival. I had hoped to give you this *important* information in person; and indeed it would be much more pleasant to be able to sit down with yourself and Mrs O., and tell my story at an evening's leisure, than to give you notice of my return to the inhabited world in this way."

After explaining his arrangements for finishing the "*Practical Astronomy*," which, during his absence, had remained in the hands of the stereotyper, wanting but a few pages of being completed, and mentioning that he proposed to remain in New York and reduce the observations which he had made on the expedition, he adds—"If my health allows of the prosecution of such employment, Professor Renwick intends to assign to me the reduction of the astronomical observations of the rest of the party. This will keep me in pay for some time.

"My present health is far from favorable. I have

recovered flesh a very little. My dyspepsia has changed its character very much, I cannot tell whether for the better or the worse; my cough is worse, has a somewhat deeper hold, and needs the attentions of the best physicians. But I am certain that I am far better in health than if I had had no variation of pursuit or occupation; and after so long an acquaintance with the mountains and woods, a little work with the pen is now to me an agreeable change.

"I shall not confine myself very much, but shall find business and acquaintance enough to give me an opportunity for much travelling over this extensive city. Two or three weeks will decide whether this kind of life will be favorable to my health, or whether I must turn decided invalid, and go home, or to my southern friends.

"Of the *survey*, I have too many other letters to write to say much at present. My principal duty was on a very high mountain, about thirty miles south of our claimed northern boundary, upon the summit of which I employed the principal instruments of the party in astronomical and geodesical observations. Mr. S. and a hired boatman were employed with me. We rejoined the party at the head of Temisconata lake, near the St. Lawrence. We came down from the head waters of the St. John as far as Woodstock, and thence by stage and steamboat routes.

"Assure Mrs. O. and the other members of your family, of my earnest wish to visit them again, which I hope to be able to do soon."

In accordance with this intimation, we tendered to our suffering friend an urgent invitation to come and

make his home with us, as long as would suit his inclination or convenience. At the same time, in conformity with the convictions of my own mind, with respect to the course that was indispensable to the preservation of his valuable life, I advised him to hasten to his kind friends in the milder climate of Virginia, who were entreating him to come; and I urged him to suffer neither his pecuniary interest, nor my own, so far as either was involved in the completion of the "Practical Astronomy," to be placed, for a moment, in competition with health and life.

Notwithstanding the apparent buoyancy of spirits under which the foregoing letter was written, his physician in New York, although reluctant to extinguish in his patient the last rays of hope, expressed to Mason's friends a decided opinion that he could live but a short time, a considerable portion of the lungs being already consumed. Shortly after his return, also, a very debilitating complaint reduced him suddenly many degrees lower in the scale. He still, however, continued his mathematical calculations, and wrote long letters to his friends, relating to them, with great minuteness, the incidents of his expedition. But he was in a few days admonished of the necessity of giving up all literary efforts, with the exception of letter-writing, which he kept up to the last. November 4th, he writes to Mrs. Turner—"I had hoped, on my return to New York, to be able to employ a few hours a day in reducing my observations on the survey, and to spend the rest of the time in recreation and repose. My spirits, which were at the lowest ebb before starting on the campaign, were much recruited, and it seemed a sort of novelty to go to pen and paper again. But although my stomach

complaint (the foundation of my cough) seemed no worse, my cough itself evidently had a deeper hold than when I left. It was plain, however, that I was very much better in every respect than I should have been if I had remained at New Haven, for there my increase of cough and loss of flesh was almost daily perceptible. A day or two after arriving in New York, I was attacked with a disorder which reduced me to great exhaustion of body and mind. I am now getting better of it, but it has so far developed the nature and extent of my cough, that I think no more of an attention to business of any kind; and after arranging my papers so that others can reduce them, and settling debts and other matters in New Haven, my literary pursuits will be ended. I look then to *home* with longing eyes. I have not seen my father for a long time. He enjoined it upon me, if my health failed, to come to my home, where were friends to watch over me, and give me more to amuse and recreate my mind and body than I could have anywhere else; and would I had yielded to his welcome long ago. When one is fairly obliged to own the title of *invalid*, the very name of home has more than a common charm in it.

"I shall try to write to cousin M—— soon, but I cannot promise how soon, for at present all things are quite uncertain. I know she will pardon me now. I have not written to my father, and I do not know how soon I shall be able to write. I have been a considerable time writing this short letter, and I must stop, though I wish to write more."

Two days after writing the foregoing letter, he addressed the following to his father, appearing, in the

mean time, to have changed his purpose of going to Michigan, in favor of Richmond.

"New York, November 6, 1840.

"DEAR FATHER—

"I have returned from the boundary expedition, and hasten to write to you about it, and about myself. I found the campaign romantic and pleasing, with scarce any thing that could be called real hardship. We travelled up towards the head waters of the St. John's, forming a little fleet of batteaux and pirogues. I preferred to go with Professor R. in the birch canoe, and I would you could have seen the admirable skill with which our Indian piloted us over sunken ledges, or shot up through the swift rapids among rocks and foam. None slept more warmly or more soundly than we in our tent, seven or more of us, with a roaring fire a few feet in front of the open door. I was located finely with Mr. S——, on a high eminence called Green Mountain, about thirty miles south of the northern boundary ridge, and eleven hundred feet above the waters of that region. A hired boatman was stationed with us to find wood, water, and other conveniences. We built a snug cabin in a valley between the highest peak and one of the elevations that rose nearly to the summit of the highest. I had the two most valuable instruments of the party, besides minor ones, one for terrestrial observations, (a large German theodolite,) which I stationed on the summit of the peak, which rose very steep above us. With this I took azimuths of the distant mountains, their altitudes and contour, especially of the ranges belonging to the northern boundary. The other instrument was for celestial observa-

tions, and was used close to the camp. These were all day-observations on the sun and moon, except one or two in the evening on stars. I afterwards went up the Madawaska river, and stretched up for seventeen miles that rough Atlantic-aping lake, the Temisconata, to the head-quarters or rendezvous of the party.

"Our return was very pleasant, and I arrived in New York a week ago. I had expected to go on and reduce my observations in New York, and had already begun at an office in Columbia College assigned to myself and a gentleman to work with me, expecting to take it easily, and give myself much recreation and repose. But a day or two after my arrival in New York, a severe disorder exhausted my strength and increased my cough temporarily. I am now nearly over it, but the turn has so developed the nature and extent of my cough, that after a few days spent in arranging and modelling matters for others to work through, I shall close entirely all literary pursuits, and consent to think myself for the present an invalid.

"In such case, the first place to which I look with longing eyes is *home*, a name which has a charm to every one brought down by sickness; and I think of my new mother, and the children that would amuse me, and the kind nursing I should have if still more deeply stricken. But, on the other hand, I know the condition of the family, ill calculated to bear another unprofitable addition to its members; that, struggling with difficulties as you all are, however great the earnestness with which you would welcome home a sick son, your hands could ill be spared to minister to disease, and support an unserviceable member of the family. I have thought, therefore, if aunt Turner was

willing to receive me, that I should winter at Richmond, and have written to her. I shall be sure there of good nursing, and medical advice, and love, and attention. Another reason, which above all others has made me look towards home with strong desire, is the privilege of enjoying your religious influence and counsel. Write to me, father, frequently and seriously ; and let sister L. write too. In my present state of inaction and languor, it needs all that may rouse active and strong attention in me, to give me even a faint impulse towards what is right.

“ I shall go South probably in two or three weeks. Love to my mother and my new sisters. I hope they are as happy as health and cheerfulness can make them. Give brother D. and sister L. my warmest love.

“ Your affectionate son,

E. P. MASON.”

On the 15th of November, he acknowledges in grateful terms the kind invitation of Mrs. Turner to Richmond, and mentions to her his purpose of soon setting his face towards his affectionate and faithful friends at Roseneath.

A short time afterwards we received the interesting youth at our house. He had come to pass a few days with us, to arrange his affairs in New Haven, and to correct a few proofs that remained of the *Practical Astronomy*. The change in his appearance since he left us in August, was not greater than we anticipated ; but his whole aspect was that of the latter stages of the consumption, attended with the usual sad train of emaciation, ghastliness of feature, a hollow cough, and profuse expectoration. He met us with a smile, and with

a cheerfulness and simplicity of expression, little differing from his habitual expression when in health. He retained, also, unless when in a severe turn of coughing, a lively susceptibility to all the objects of his former interest, such as the conversation of those he loved, the music of the piano, and any thing new in science, and especially in astronomy. When, however, he was not aroused by some interest of this kind, he sunk into a dozing state, and seemed almost to lose the consciousness of surrounding objects, though not asleep. He had a few pages more to write to complete his *Practical Astronomy*, and would place his writing materials before him, but gaze upon them for a long time with a seeming incapacity for mental effort. Hence he for the most part, during the day, deserted the study, and transferred his pen and paper to the family room, hoping to seize upon those intervals of renovated spirits, which occurred in the intercourse of the domestic circle, to accomplish what he found it so difficult to do when alone. A bright period, however, would, as he affirmed, return to him late in the evening; and despite of all our remonstrances, he would occasionally recur to his pen from ten o'clock till midnight. Every day witnessed, in the family circle, some proof or other of his refined mechanical talent, though often displayed on very common and unimportant objects. One of these written and subscribed by him "as a token of remembrance to Mrs. O.," was the entire Lord's Prayer, occupying only a little more than half a single line of common letter paper, and yet so perfect under the magnifier, that every letter appears elegantly turned and the whole pointed with the greatest neatness and accuracy.

One evening, while conversing with me in my study,

his intellect lighted up—he seized his pen, took down Baily's Astronomical Tables, and completed the calculation of an example in his article on longitude, at the close of his Treatise. This being done, he added the concluding paragraph, as follows: "We are now arrived at the conclusion of our work, and with this partial review of the terrestrial contrivances, and means by which astronomers have acquired their knowledge of the celestial bodies, we shall turn, with increased pleasure, to the consideration of the *results* of their labors, which constitute the departments of descriptive and physical astronomy. The student would regard, for example, with none the less interest, the return of the long-expected comet, and the exact verification of the calculations of mathematicians, because he was acquainted with the means by which the observer tracked the body in its passage through the heavens, and with his diminutive but refined apparatus, recorded unerringly the data from which the physical astronomer should predict, without hazard of failure, the exact positions which it should in future assume. Nor will an eclipse be viewed with less pleasure and satisfaction, after he has become able to foretell its time and aspect. And all the data of astronomy in their immensity of extent, its processes and magnificent conclusions, will now seem to him far more stable and secure, for he has derived confidence from penetrating to the very basis of the science, from reviewing the delicate resources of the observer in his instruments, and the processes of observation, until he has arrived at valuable measurements and primitive data.

"The observer, too, who has the means of deriving results of his own from the heavens, needs no stimulus to

prosecute a study, which few, who thoroughly engage in it, will easily relinquish. Every failure of agreement in his conclusions will but urge him patiently to solve the difficulty; every instance of success will inspire him with fresh ardor and enterprise; and he will find no pursuit more constantly bearing him forward to what lies beyond him, more absorbing in its prosecution, more elevating to his mind, or impressing him with a deeper sense of the power and wisdom of the Creator."

His paroxysms of coughing were now severe, especially at night, and it was hardly possible for those who felt a deep interest and sympathy for him to sleep quietly within hearing of his struggles. Yet he refused any attendance by night; and the serene and even pleasant manner in which, after such a night, he would respond to my inquiries on entering his chamber next morning, astonished me. The evening of December 1st, after writing to Mrs. Turner a short letter, advising her of his intention of starting for Richmond next morning, he began late in the evening packing his trunk. I urged him to permit me to do it under his direction; but he declined, saying that he wished to arrange every article according to a definite rule of his, so as to know where to lay his hand on it when wanted. Too weak to stand long, he strewed his effects around his trunk, and seated himself on the floor within reach of them all, and thus leisurely commenced packing. At his earnest solicitation, I left him for the night, but not without some anxiety for the result. To my inquiries next morning, he replied, "that he had had an excellent night, having treated himself with a fine nap in his chair, which he found more refreshing than in his bed, and less interrupted by coughing." It

appeared that it was two o'clock before he retired, but he congratulated himself on so good a night as preparatory to entering on his journey.

I accompanied him in a private carriage to the steamboat, and on the way, under the full conviction that it was the last interview I should have with him on earth, I thought it most fitting that the time should be occupied solely with the subject of religion. At different times while he was with me, I had before endeavored to lead his mind to this all-important subject. He was always attentive and respectful, but never free to reveal the state of his feelings or his opinions so fully as I desired. When he returned from New York in the spring, he seemed more particularly interested with religious inquiries than I had ever known him before. At the suggestion of a relative in New York, (the Rev. Mr. Marsh,) at whose house he lodged, he had been reading Butler's Analogy of Natural and Revealed Religion, a work whose luminous views of truth, and conclusiveness of reasoning, were well adapted to his taste and habits of investigation. He expressed a great partiality for this work, had it constantly on his table during the ensuing summer, and I believe carried it with him on his boundary expedition. The Bible, too, was generally on his table at this period, and I had reason to believe that he studied it with attention. But whenever I urged the importance of an *immediate* surrender of himself, and consecration of his powers to the service of his Maker, he was apt to reply that he had determined to take up the subject in earnest when such and such engagements, as his paper on the nebulæ, or his treatise on Practical Astronomy, were completed. In this last interview, I reminded him that

these obstacles were now removed, and did not entirely shun the painful duty of declaring to him my conviction, that he had but a short time to live. Desperate as was his present condition, and unequivocal as were the symptoms of the latter stages of the consumption, yet it was evident that he did not view the termination as very near, and that he even cherished some hopes of a recovery, as he observed that he thought it an "even chance" whether he should recover or not. He assured me, however, that it was his intention to seek earnestly and without delay for that preparation for another world, which was needful for him in either event, of life or death. He said he had sometimes ventured to hope that he had become truly pious when a child; but that his coldness, not to say indifference on the subject of religion, for much of the time since, had shaken his confidence in the reality of such a change. We reached the boat—as he alighted from the carriage he bade me an affectionate farewell, accompanied by his usual smile,—a pleasing expression to carry with me, as the last recollection of a youth so justly endeared to me.

When he arrived in New York, although to appearance wholly unfit to be abroad, yet he summoned that extraordinary resolution with which he was gifted, visited the office of the stereotyper, in an upper loft, reviewed the last proofs of his *Practical Astronomy*, and attended to some matters relative to the survey. His relation and friend, Rev. Mr. Marsh, insisted on accompanying him on his journey southward; but he made light of such a proposition, feeling entire confidence in his ability to perform the journey. Of his progress to Philadelphia, we are informed in the following letter to Mrs. Turner.

“Philadelphia, Tuesday, December 8th, 1840.

“DEAR AUNT—

“I started from New Haven on Wednesday last, (being detained by weather a day or two beyond expectation,) finished business with the survey, &c., in two days, at New York, and started Saturday morning for Philadelphia. Snow had fallen during the night, and drifted, so that instead of reaching Philadelphia by two o'clock, P. M., we were an hour or two each in getting through some snow-banks, and reached the Walnut-street wharf by ferry between six and seven. The wind and drifting snow and cold, induced me to push for the hotel near the ferry, where the accommodations were tolerably good. The snow-storm and drifting began again, continuing till Monday, and so I remained there as dull as mortal could be. Monday noon I changed my lodgings to the boarding-house of Mr. Walker, my astronomical friend. It is only a couple of squares from the Baltimore depôt. Here I am snugly bestowed in a room by the side of Mr. Walker's, with a good fire, and the hostess, Mrs. A., ready to show me every attention. Mr. W., too, is a very excellent nurse, and understands what an invalid wants.

“The snow, lying in deep drifts, troubles the Philadelphia travellers beyond all account—nothing like it since 1820. I was lucky in a passage from New York of *ten hours*; the next train was between twenty-four and thirty six-hours; and the last trains, all that have attempted the passage, were by the latest news fast at Bordentown. The last mail from Baltimore was, I believe, twenty-four hours getting through. Now for a parenthesis—On my way from New York I found the

'Bay Line' started from Baltimore at nine o'clock, A. M., Mondays, Wednesdays, and Fridays. I therefore made full calculation to go by the Wednesday's boat. This would allow me Monday to see Mr. Walker and attend to certain interests of mine here,* and this morning I was to have gone on to Baltimore. But I think that the very strong probability of a trip of twenty-four hours, through 120 miles, with all the inconveniences of night travelling and confinement in one apartment for that period, is to be avoided, as very imprudent. The drifting is over—we have still, sunshiny weather, and as the worst drifts are only in particular places, as in the deep cuts, the numerous hands and engines employed, will render it passable with speed and safety in two days more, unless some very unfortunate snow should intervene. On the other hand, I am made so perfectly comfortable here—far more so than I could have expected—and can so readily command whatever is needful to me, that it furnishes a strong additional reason for preferring to remain. I shall therefore, if health and weather permit, go to Baltimore Thursday, take the Bay boat Friday morning, and reach Richmond three or four o'clock on Saturday, if they promise truly. Very possibly there may be some delays, especially at this season, in their bay and river passage.

"I have given you merely a description and notification of my past and intended movements: I am too poor for any higher literary effort. The snow does not seem to bear very hard upon my lungs; though, in a cold air, I keep the lower part of my face well cover-

* Certain astronomical memoranda which he wished to confide to Mr. Walker.

ed, so as to breathe warm. I am very dull, and it is growing late, so that I close here. Whatever length of time the mail takes, it must reach Richmond before I do. All love to cousin M.—to uncle T.—to yourself—and lastly, to aunt B. and my cousins.

“Your affectionate nephew,

E. P. MASON.”

This is the last of a long series of letters to his aunt Turner, commencing at the age of seven years, and continued with little interruption to this time.

He wrote but one letter more, and that was addressed to myself, as follows :

“Richmond, December 19, 1840.

“DEAR FRIEND—

“I have been absolutely required to rest for several days since my arrival at Richmond, or I should have written to you sooner. [After giving a narrative of his tedious journey to Philadelphia, and the great kindness of his friend Mr. Walker, while there, he proceeds:] I hurried away from New York without doing any thing to the ‘Preface.’ My staying at different hotels, want of accommodations, changes of diet, bad nights in confined berths, &c., have considerably increased my disorders. I have therefore done little but rest since my arrival. Yesterday, I undertook to write to you, but although the sheet lay on the table before me all day, and all the evening, I did not muster nerve enough to commence. I think, however, I am growing better, and shall be able to send you the preface in four or five days. If I fail upon it, why, you can write one, or the treatise can go without. Mr. W. is at present no

scorner of meteors in general, and is bestowing great attention on the August shower. After examining your theory of orbits, he thinks much more favorably of it than he did before. [He next makes very affectionate mention of all the members of my family, sending particular greetings to each, and expresses the most grateful feelings for such attentions as he received while with us.] It may perhaps please you to mention that on my arrival in Baltimore, after sitting in the bar-room some twenty minutes, trying to find a little warmth at the stove, the bar-keeper spoke to me from the midst of twenty others, and said he thought I could find a parlor up-stairs more comfortable. I did so, and with good reason found it more comfortable; for there was a first class *Olmsted-stove* warming that room and the adjoining one in a very perfect manner.

"I seal this letter in rather a curious way, for the edification of the young ladies, who will not, I think, be able to guess how the color is laid on.

"With much respect and friendship for you, dear sir,

"I remain yours,

E. P. MASON."

I should deem some portions of the preceding letter as of too little importance, or of too personal a nature, to render it suitable for publication, were it not for the belief that the near friends of this youngest martyr of science, will be desirous of knowing every thing that indicated the state of his mind and feelings in the last written expression he ever gave to them.

In less than a week after the preceding letter was received, it was succeeded by the following from his most valued friend, W. B. Chittenden, Esq.

“Richmond, 27th Dec., 1840.

“DEAR SIR—

“The object of this letter is to announce to you the death of your young friend, Ebenezer Porter Mason. He arrived at the residence of his uncle (the Rev. J. H. Turner,) near this city, on the 15th instant, much reduced, but maintaining so cheerful a tone, that it was hoped that with proper medical treatment and assiduous nursing, he might hold out for some months. But the progress of his disease had been greater than any one supposed. On the night of the 24th, there came on an alarming prostration, although, as I understand, without increase of pain, which continued until five o'clock on the morning of the 26th, when he expired suddenly, without convulsions, retaining his mental faculties unimpaired to the last. From his known familiarity with the truths of religion, his meditative turn of mind, the conscientious purity of his life, and especially from the expression of his views to his uncle on the day preceding his death, his friends have the consolation to believe that he was in a state of preparation for the change which awaited him. We have just returned from committing his remains to the earth.

“I became acquainted with Mason when he was not more than eight or nine years of age. His remarkable precocity, and thirst for knowledge at that time, and his devotion to study ever afterwards, induced me to believe, that if his life should be spared, he would take honorable rank among the philosophers of the age, and contribute a respectable share to the advancement of science. With such expectations, and strongly attached to him for his moral and social qualities, I cannot but regret that he should pass away without some me-

morial other than the common one, 'that he lived and died.'"

Mr. Chittenden proceeds to urge a number of reasons why I should prepare some notice of this extraordinary youth,—a suggestion which led me to undertake the present memoir.

The foregoing letter was in a few days followed by one from Mrs. Turner, communicating further interesting particulars concerning the last hours of her nephew, or (as she might almost say) her beloved child.

After alluding to the intensity of her own feelings at the affliction, she adds—"The dear sufferer arrived here in a state of extreme exhaustion. Not having formed a conception that he would undertake to travel alone in so feeble a state, it was difficult for us to realize for a day or two, that it was not in some degree the result of fatigue and exposure. As soon as I recovered in some degree from the shock caused by seeing him such a wreck, my solicitude became intense to discover his views and feelings with regard to his situation. You know he did not readily unfold his deepest feelings; and his tenderness for me was such, together with the difficulty of exercising due control over myself, as to render the performance of the duty exceedingly trying. Talking wearied him soon, and he often fell asleep while engaged in conversation.

"A day or two after his arrival he said to me—'Aunt, it is gratifying to see my friends, as an expression of their kindness, but I am very desirous, and I feel it to be of great importance to me, that I should be much alone. I wish you would place here for my use, Scott's Bible, Doddridge's Rise and Progress, and Al-

leine's Alarm.' I remarked, 'My dear, you are very weak and not able to read much ; here is your Bible, where you know there is ample provision made for all you need.' He said, 'I am sensible of that, and all I can do is to cast myself at the footstool of Divine mercy, and I trust I shall not be a cast-away.' I immediately presented to his mind the case of the leper, mentioned in the seventh chapter of the Second of Kings, which he appeared fully to comprehend and to feel. At another time, while reading to him the fourteenth chapter of John, he took the words from me and repeated them from memory. I remarked, 'I am rejoiced, my dear, that this passage is so familiar to you in this season of trial.' He said, 'I know it all, but I want to feel it more ;' and when I asked, if these chapters had fastened on his mind from Sunday school instruction, he replied, 'No, but from reading them so much.' He seemed to take a deep interest in my reading to him Mrs. Graham's 'Passage over Jordan,' which you know is a collection of portions of Scripture adapted to these solemn circumstances, with appropriate remarks.

"In this manner his thoughts were occupied when he was suddenly taken from us. In the evening of the ninth day after his arrival, he was sitting, apparently as well as usual, when he complained of a sudden pain in his shoulder, which very soon extended across the stomach, and produced great weakness. During the next day he lay tranquil, without coughing much ; but his patience and serenity were so remarkable throughout his sickness, that I often entreated him to let me know what his sufferings were. He always insisted that they were very slight ; but at this time, when in-

terrogated, he said, 'Only shortness of breath—but I am willing to suffer.' During the night he seemed to sleep quietly, and we avoided speaking to him, except when it was necessary to administer medicine. About five o'clock in the morning, he requested to be raised from the bed, and in making the effort, he expired without a struggle or a groan. Blessed spirit!—admitted, I have no doubt, to a mansion of rest; escaped from sorrow and from sin, to dwell in the unclouded beams of love and holiness.

"The Rev. Mr. Pollock, our minister, requested that his body might be conveyed to the church, (it being the sabbath,) and the occasion made use of for the special benefit of the young. An invitation to them all was given from the various pulpits in the city in the morning, and a funeral discourse was preached by the Rev. Mr. Pollock."

We have now accompanied this remarkable and interesting youth from the cradle to the grave, a period less than twenty-two years. It seems unnecessary to enlarge upon his character, since the preceding pages have already developed its leading attributes. The impression made by his writings, is entirely in unison with that left as the result of the greatest personal intimacy. It is that of a disposition artless, affectionate, and benevolent; of a heart fraught with noble and exalted purposes, and strongly imbued by nature with the love of truth; and of intellectual capacities of the highest order and finest proportions. The peculiar assemblage of faculties requisite to form the great astronomer, is seldom found united in the same individual, comprising, as it does, so many of the higher attributes

of genius,—a *hand* of exquisite delicacy to construct and adjust—an *eye* endued with extraordinary powers of vision to observe—an intellect the most profound to follow out all the consequences of astronomical discovery—and that unconquerable enthusiasm which is regardless of the loss of rest, of exposures by night, and even of life itself. These qualities were *severally* possessed by young Mason in an unusual degree ; but it was their striking and harmonious *union*, which, from the time I first discovered it, led me to recognize in him the promise of one probably destined to enlarge the boundaries of astronomical science. Among great astronomers, with whose peculiarities of genius we are familiar, some have been distinguished for one of the foregoing qualities, and some for another ; but few have united them all. Tycho Brahe had great powers of observation, but he was an indifferent calculator, and he failed altogether as a philosopher ; Kepler had unbounded invention, and indefatigable industry, and invincible enthusiasm, but he was deficient in judgment and the other characteristics of a well-balanced mind. Galileo affords the finest example of the sound philosopher and the practical astronomer united,—the combined product of originality to invent and construct the instruments of observation, acuteness to observe, and logical powers to reason. I should only speak the decided convictions of my mind, were I to express the opinion, (however presumptuous it may seem,) that if Mason had lived he would have resembled Galileo. It might be equally safe to compare him, in some points, with Sir William Herschel ; having a mechanical turn equally remarkable, a similar love for canvassing the rarest objects among the heavenly bodies, and of sounding

the most profound depths of the universe ; while it would not be claiming for him more than his due, to ascribe to him mathematical powers more extraordinary than were possessed by the great English astronomer. It ought to be remarked, that his paper on the nebulæ is the first considerable contribution to astronomy, in the way of original observation and discovery, made on this side of the Atlantic ; and young as he was at the time of his death, he was clearly entitled to rank among the first astronomers of America.

It affords me great satisfaction to be able to fortify opinions, which may seem so bold, by the authority of the most competent judges. For this purpose I may be pardoned for introducing extracts from the letters of several valued and respected correspondents.

From Mr. *G. H. Hollister*, one of the earliest and latest of Mason's most intimate friends, I have been favored with the following very just remarks upon his character and genius :

“ In the daily intercourse I had with Mason, during the summer of 1840, I found new cause every day, in his society, to set a higher estimate upon his worth. He had all the qualities of mind and heart that are requisite to constitute a faithful friend. Selfishness and envy never tainted the atmosphere he breathed. So far from considering the praise bestowed upon others as but so much taken from himself, he could never lavish praise enough upon his companions. He could find time to speak of their virtues ; but he was too well convinced of the importance of the work assigned him to do, to waste the hours in noting the little faults and weaknesses of a fellow-creature. Sarcasm, indeed, was not

a weapon that he ever attempted to wield. His fancy played around its subject with a harmless facility, and he was possessed of the happy art of making folly appear ridiculous, without placing the perpetrator in an odious light. If vanity had ever made an ingredient in his character, he had banished it long before the period to which I now refer. Nothing could displease him more than flattery; for he had studied himself with too close a scrutiny to be turned aside by the hasty remarks of others from the station that his better judgment had awarded to him. It was an incense too mean to find favor in the sight of one who had weighed all his powers in the balance of sober reason. Like every man of lofty aim, he was never able to rest satisfied with past attainments, but kept his eye always turned towards the future, too little satisfied with the present growth and stature of his faculties to cast a self-complacent stare in the mirror of the passing scene.

“There was a confiding frankness in his nature that made him peculiarly dear to his friends, and he constantly exhibited those amiable virtues, which endear their possessor alike to the confidant of his bosom and to the social circle—virtues which, rather than splendor of talents, command the homage of the heart.

“In *literature* he had made very respectable attainments: all the authors that are worthy the name of ‘English classics’ he had perused with the utmost care, and could embellish both his writings and his conversation with their most select passages. With a memory so retentive as to suffer nothing to escape its grasp, and a mind so thoroughly disciplined that it was always ready for close application, he found time for every thing without neglecting any thing. Poetry at first

made so strong an impression upon his fancy, that he was inclined at one period to cast in his lot with the sons of the Muses ; but in contemplating the wonderful works of God, in their greatest amplitude, the poet was at last merged in the philosopher. This strong imagination was indeed required to make out the full assemblage of those gifts that constitute the character of the great astronomer ; for the book which he reads, is, after all, the book of Nature, and neither diagrams nor calculations can pour the full idea upon his mind. Even science must have her poetry when she would measure the works of God.

“ During the spring and summer of 1840, Mason gave much of his time to the contemplation and study of religious subjects. Disease, in the double shape of consumption and dyspepsia, was already making the most destructive ravages upon a constitution naturally slender, and his earthly prospects began to be clouded and dim. This led him to turn his thoughts within, and examine well the motives that had actuated his busy life. ‘ I have been wrong,’ he exclaimed with earnestness ; ‘ I should have met the subject before ; but I am determined to seek till I find.’ And from this hour he did search, with a care and diligence truly surprising, not only the Scriptures, but the works of some of the most eminent theological writers, among which Bishop Butler’s Analogy was his favorite. This book he read again and again, and wished in our evening walks to be constantly conversing upon the sublime topics of which it treats. The wonderful disposition of Providence in causing us to pass through a state of trial, in order to purify and exalt us for a better sphere, and the goodness of God manifested in the care he bestows on his

children, exerted upon his mind a powerful influence. It was solemn indeed to witness the painful struggle between the fading yet flattering hopes of the invalid, and the silent admonitions from within, that these must all so soon be relinquished. To die without a name, with all the schemes of life hidden in the grave, was a bitter cup for a soul like his to drink ; but he at last seemed to become reconciled to the order of Providence, and said more than once, that if it was the will of Heaven, he could give up all his fond anticipations of knowledge and fame, and consent to be forgotten.

“The day before he started for the northeastern boundary, he called at my room, apparently in much better spirits than he had been for some time previous. He tried to be cheerful as he spoke of the salutary influence of a northern climate upon his health. But it was plain to be seen, that he, too, as well as others, had his doubts whether his constitution could bear the severity of the climate and the fatigues of the expedition. Several of his friends had used every possible argument to dissuade him from the undertaking ; but he was bent upon the trial, and could not be prevailed on to relinquish it. ‘I know,’ he said, ‘it will either kill or cure me, and perhaps the chances are against me ; but I have made up my mind, and shall run the hazard.’ The next morning meeting him abroad, I remarked that he was unusually pale, and walked with difficulty. He told me that he had not slept more than two hours during the night, and had spent the remainder in study and preparation for his journey. His conversation was interrupted by almost incessant coughing, and the hollow voice with which he spoke the farewell benediction of a friend, seemed like a voice from the sepulchre. He

wrung my hand convulsively, dropped a tear, and went his way. 'I never saw him more.'

None of Mason's intimate friends had enjoyed better opportunities of knowing him than Mr. Hamilton L. Smith, who was not only a classmate, but was his constant associate in all his astronomical pursuits while in college, and a correspondent for the remainder of his life. Indeed Mr. S. did much to inspire him with his passion for the construction of telescopes and astronomical observation, being himself much distinguished in both these respects, and having with his own hands, while in college, completed, with some aid from Messrs. Mason and Bradley, the largest and finest telescope ever made in the United States, at least up to that period. Mr. S. has kindly furnished me with the following estimate of Mason's genius and character :

"I have (says he) often thought Mason more like the younger Herschel than like any other man; in mechanical skill and practical dexterity, indeed, I think he must have surpassed even that great astronomer, or at least bid fair to excel him at some future day. His whole mind, after having first imbibed the passion for astronomy, seemed intent upon this one subject, and every auxiliary to the prosecution of his beloved science seemed to be concentrated in his genius. The first time I ever noticed his *mechanical* talent was during Sophomore year. While studying trigonometry, we constructed a quadrant together. Mason divided it beautifully. Indeed, every piece of work of his was done with the greatest nicety. It always showed a beauty of finish, the happiest adaptation of means to the end, a complete harmony and correspondence of all the parts, which indicated great mechanical genius. To this he added a

steadiness of hand for drawing, and a delicacy and taste in graphical execution, quite unsurpassed. Indeed, he would have considered himself most negligent if, in making a diagram, a single line was drawn a hair's breadth out of its true direction, or crossed another line anywhere but in the true point. I have often admired the neatness of his outline drawings. It was his practice to make angles with his pen simply, estimate their quantity by the eye, and then to measure them with the protractor; and he scarcely ever failed to come extremely near the truth. When staying at my room, at a late hour of the evening, I used to propose to him questions in algebra, which he would solve in his head, carrying through the most intricate parts without confusion.

"As an *observer*, it will be long indeed before he can be surpassed. Not the slightest wisp of nebulosity, or the faintest elongation of a double star, could come into the field of view without instant detection. His eye was remarkably keen; though short-sighted, he had the most acute vision.

"As a *mathematician*, he excelled all with whom I have been acquainted. There was a neatness in his solution of problems, and a clearness in unfolding his ideas, seldom found. When I last saw him, he had made considerable progress in the study of the Differential and Integral Calculus, and appeared to have better views of the nature and extent of this difficult branch of mathematics than any one of those who studied with him. I am inclined to think, however, that he had the greatest fondness for pure geometrical reasoning.

'As a *poet*, he might have excelled, as he possessed

that vivid perception of the beautiful, that happy command of language, and, above all, that delicate sensibility, which are true elements of the poet. His mind, moreover, was well stored with beautiful imagery ; and he had a familiar acquaintance with the best English poets. Of delicate and unobtrusive manners, of careful habits of thinking, of pure morals, and given to the devout contemplation of nature, he was fitted rather for the calm life of the philosopher, than for one of the active professions.

“ Among his comrades he was acknowledged by all to be a wonder, as they saw with concern that the soul was too noble for its earth-born tenement, and that, as the fearful ravages of disease were consuming this, the soul shone constantly with increasing lustre.”

I am happy to add to the foregoing estimate of the talents and character of the lamented Mason, the testimony of so impartial and so competent a judge as S. C. Walker, Esq., of Philadelphia, with whom, as we have already seen, he had the happiness to form an intimate acquaintance, and to whose kindness and encouragement he owed and felt the deepest obligations. In a letter received from Mr. Walker soon after Mason's death, he expresses himself as follows :

“ In reviewing the brief career of our Mason we are struck with his deep devotion to practical astronomy, and with the mechanical skill and contrivance displayed in fitting up the most powerful optical instrument ever used in this country. Not less remarkable are the tact and discrimination employed by Mason and Smith in the selection of the proper objects of their researches, and the fertility of expedients resorted to by Mason to convey to others the impressions derived from the con-

templation of the heavens. His drawings of the telescopic appearances of four remarkable nebulae, two of them in part or altogether his own discoveries, are the most complete works of the kind extant.

"In an interview with Mason in his short stay in Philadelphia, while on his way to his final resting-place in Virginia, he showed me a list of his measurements of the positions and distances of several of the binary systems, (as γ Virginis, Castor, σ Coronæ, &c.,) and mentioned that a discussion of all the observations published to the date of 1838, with his own of the spring of 1840, on the graphic method of the younger Herschel, had given him an ellipse of a period of 171 years for γ Virginis; and that the date of 1840.4 with his elements, furnished an angle of position of $25^{\circ}.5$. I have since received the astronomical 'Notices' from Altona, and there find a similar value for the same date, in the measurements of Struve at the great Pulkova observatory, and of Kaisar at the Leyden observatory.* In both these pursuits, the discovery of nebulae and the computation of the orbits of double stars, our Mason was, I believe, the first American whose efforts have been crowned with success. With talents of the first order—with a perseverance that surmounted every obstacle—with a devotion to science not to be surpassed—the path to the highest attainments, both in theoretical

* "The first ellipses computed for this binary system by the younger Herschel, about the year 1830, of 550 and 660 years, differ from recent observations nearly 20° . The ephemeris of Mr. Mädler, of the Berlin observatory, computed in 1838, from his ellipse with a period of 158 years, differs 8° from their present position." (Walker in Proceedings of the American Philosophical Society for January, 1841.)

and practical astronomy, was open before him ; but his course has been suddenly arrested, the hand of the destroyer has been laid upon him, and all that remains for us is his bright example, and the memory of his attainments and discoveries, which should be held up to the contemplation of the youth of all our universities, and which will continue to be cherished by every lover of the works of nature."

In a recent letter which I have had the pleasure to receive from Mr. Walker, he observes : " I do not know of any American who at the age of twenty-one, had done so much for the advancement of science, and made such attainments as Mason." No man in this country, it is believed, is more competent to form a judgment on this subject than this gentleman, being himself an excellent astronomer. To him Mason, in their last interview, committed some telescopic observations he had made on the meteors of August, 1839, and Mr. Walker has inserted them in his able paper "On the Periodical Meteors of August and November," published in the American Philosophical Transactions. (See Appendix, Art. III.)

The high opinion expressed by Mr. Walker of the genius of our astronomer is in perfect accordance with the views of him with which I have been favored by Professor Renwick, Professor Loomis, Mr. Holcomb, and Mr. Edmund E. Blunt, gentlemen well known as among the most able judges of his merits which our country affords. Mr. Walker, speaking of his Treatise on Practical Astronomy, says, "it is a precious gem for the practical astronomer," and Mr. Blunt pronounces it superior to any thing of the kind he has seen in any language. I should not think it necessary to offer

the testimony of men of science, in confirmation of the exalted opinions I have ventured to express, of the promise this youth gave of standing among the first astronomers of the age, had not death cut him off before his powers had received their full consummation, and especially before he had had opportunity to make a fair demonstration of them to the world.

The only young astronomer that occurs to me as resembling him, both in the peculiarity of his genius and in his early fate, was the English astronomer Horrox. This remarkable youth was born in the early part of the 17th century, and died at the age of twenty-three, having apparently been consumed by a similar zeal. He was the first successfully to predict, and the first that ever actually witnessed, a transit of Venus. The English astronomers still deplore his premature loss, as having deprived astronomy of one of its brightest luminaries.

The inquiry has of late often been made, "what comparison did Mason bear, in intellectual powers, to the late lamented Professor Fisher?" whose high endowments of mind, as well as his melancholy fate, are held, by all who knew him, in vivid remembrance.* Having been a classmate of Professor Fisher, and after-

* Professor Alexander Metcalf Fisher was born at Franklin, Mass., in 1794; graduated at Yale College in the class of 1813; was elected tutor in 1815, adjunct professor of mathematics and natural philosophy in 1817, and professor in 1819. In April, 1822, he embarked at New York for Liverpool in the packet-ship Albion, and was lost in the fatal shipwreck of that packet on the coast of Ireland. (See Professor Kingsley's "Eulogy," and a biographical sketch in the American Journal of Science, Vol. V.)

wards associated with him as tutor, in the instruction of the same class, and having maintained an intimate correspondence with him to the time of his death, I enjoyed favored and peculiar opportunities of observing the development and exercise of his faculties; and I believe no one of his surviving friends regarded him with higher admiration while living, or retains a deeper respect for his memory.

The excellence of Fisher was that of pure intellect. His greatness as a mathematician was the fruit of no peculiar bias or genius for that particular field of knowledge, but it resulted naturally from the application of a mind of remarkable strength and acuteness to a subject of the greatest difficulty. His grasp on every other subject requiring the highest powers of the intellect, was equally strong. The profoundest subjects of human thought, such as transcend the powers of ordinary minds, seemed only the natural and proper aliment of a mind like his. Few, even of the most distinguished men whom I have had the happiness to know intimately, have appeared to me to equal him in *strength of judgment*; an attribute which, in its highest form, is the result of great power to discern the truth, unwavering integrity to follow it, and an entire exemption from every quality, such as prejudice, passion, or enthusiasm, which can sway or enfeeble the decisions of the intellect. Seldom have such quickness of perception, and such soundness of judgment, been united so fully in the same individual as they were in this extraordinary man.

Fisher died at twenty-eight—Mason at twenty-two. It is impossible to say whether Mason, if he had lived to the same age with Fisher, would have exhibited an

intellect as profound, and a judgment as strong ; but he had, unquestionably, a much greater variety of powers, uniting, as he did, in the finest proportions, the qualities of the artist, the mathematician, and the poet. This combination of faculties is exceedingly rare ; yet each is important to form the great astronomer. In Mason were found, at once, the eye endued with extraordinary powers of vision, the hand of the skilful artist, the imagination that soars after new worlds, and powers of reflection of the highest order. Without attempting further to draw nice distinctions between forms of high and acknowledged excellence, we may venture to predict that in the annals of Yale, Alexander Metcalf Fisher and Ebenezer Porter Mason will ever occupy a page among the most gifted of her sons.

APPENDIX,

CONTAINING ASTRONOMICAL PAPERS AND CORRESPONDENCE.

ARTICLE I.—See page 92.

Mr. Amasa Holcomb's account of the rise and progress of his manufacture of Reflecting Telescopes.

Mr. HOLCOMB's establishment was situated at Southwick, Massachusetts,* not far from Goshen, where Mason's family resided for several years. This gave him an opportunity of paying several visits to Mr. Holcomb, whose acquaintance he eagerly made, and with whom he carried on a frequent correspondence respecting the mode of perfecting and using telescopes. The correspondence commenced during his Sophomore year, and opens with the following modest introduction: "Being a sort of enthusiast in all matters relating to theoretical and practical astronomy, I trust you will not think it improper that I write to you, (although I am almost a stranger,) with the desire of corresponding with you as much as your time and inclination may permit. There are so few that pay much attention to these subjects, that the privilege of correspondence with one of your experience in these pursuits, would afford me the liveliest satisfaction. Should there be, however, already too many calls on your valuable time, I hope you will not allow me to encroach upon it." The remainder of the letter, and, indeed, the entire correspondence, would doubtless be read with deep interest by the young astronomer, commencing the same fascinating but diffi-

* It is now removed to Westfield, Massachusetts.

cult pursuit ; but having swelled the memoir far beyond my expectation, I am obliged to omit a large portion of **Mason's** astronomical writings and correspondence.

At my request Mr. Holcomb has kindly furnished me an account of his establishment, prefacing his remarks with a high encomium upon the genius and attainments of **Mason**, and uniting with many others in deploring his untimely loss.

"You ask me (says Mr. Holcomb) to communicate a few of the leading facts relative to my manufacture of telescopes. My first attempt at grinding and polishing lenses, was about the year 1826. Having calls for a few levelling instruments, and not being able readily to procure the small lenses for the eye-pieces, I attempted to make them myself, and after a few trials succeeded. I had made optics my study ten years before that, and of course knew how they were ground in Europe, but had no experience in practice. I had studied astronomy and calculated eclipses as early as 1806, and made observations on the great eclipse of the sun that year. My success in grinding and polishing lenses, aroused me to attempt making a telescope. My attention was however directed to the construction of telescopes of the refracting kind. I made some pretty long ones with a single object-glass, and a few achromatics. But the extreme difficulty that I met with in getting suitable glass, discouraged me from prosecuting the manufacture of refractors, and turned my attention to reflectors. I have succeeded so much better with these, that I have abandoned the other kind altogether. My progress has been a long course of unremitting toil, attended with increasing success. My patience during the first years was severely taxed. I have worked week after week upon a small reflector, hoping to make it perform better, when perhaps for a whole week it would be growing worse. I do not, however, meet with much difficulty now, so far as figure is concerned. I believe the figure of my reflectors is as perfect as any made in Europe. I have compared them with re-

flectors actually polished by some of the best artists in Europe, and found mine, to say the least, not at all inferior to the best of them ; and you will perhaps conclude, from what Mr. Mason says in one of his letters, that the seven foot of my construction showed objects that were seen with extreme difficulty by Sir J. Herschel, with his seven foot excellent achromatic. The great defect in large reflectors arises from the tremors in the metal itself. No one but a practical observer will understand this. A complete remedy perhaps is not to be expected. To an enthusiasm like mine, but little encouragement to persevere is necessary, more than is found in the attractions of the business itself. The hope of still further success, of being able to see a little plainer, outweighs every other consideration. I have seen on some favorable evenings the following double stars completely separated, so as to show a space between them—36 Andromedæ, λ Ophiuchi, μ^3 Bootis. I have seen ϵ Arietis double, but not perfectly separated ; it requires the finest European telescopes to deal with these extremely difficult stars. My method of finishing off my reflectors, or giving the final finish to the figure and polish, is somewhat different from the European method. I use the method by which I have succeeded best. I could not convey an idea of the process so as to make it intelligible without a very long description, and it would be of no use except to the practical optician.

“ When I commenced manufacturing telescopes, it was only with a view to my own gratification, without the least expectation of ever making it a business of profit. Some scientific men have, however, taken an interest in my success, and encouraged the sale. My telescopes are now in use in almost every state in the Union, and some have been ordered for foreign countries. I make them of any size required, but my manufacture is principally confined to the four following sizes and prices : the smallest size I make is 5 feet long, 4 inches aperture, with 4 eye-pieces, having powers from 40 to

300 ; mounted on a tripod stand, braced after the European manner—price \$100. These will show the belts of Jupiter, the eclipses of his satellites, and such double stars as Castor, α Herculis, ζ Aquarii, 4 and 5 ϵ Lyræ. The next size is $7\frac{1}{2}$ feet long, 6 inches aperture, with 5 eye-pieces, having powers from 40 to 600—price \$250. With this size the division of Saturn's ring has been seen well defined all round, except that part behind the planet. The next size is 10 feet long, 8 inches aperture, with 6 eye-pieces, having powers from 60 to 800—price \$400. The largest size is 14 feet long, and ten inches aperture, with 6 eye-pieces, having powers from 100 to 1000—price \$600. The external work is plain, but substantial. All these, except the smallest, are mounted on a plan entirely my own. It is very simple ; but for convenience and steadiness, I think it is not surpassed by any of those which are far more expensive. I have one of each size constantly on hand, so that I can furnish to any order without delay."

ARTICLE II.—See page 93.

Journal of Observations on a Cluster of Spots upon the Sun's Disc, in the month of March, 1837. By E. P. Mason.

March 1st, 1837.—A cluster of spots has appeared upon the eastern limb of the Sun, which, from its extent at so early a period of its passage, promises to be an interesting object. I observe that there are bright ridges preceding at some distance, as if to herald its approach. These ridges are brighter than the body of the Sun, but narrow, and possess some resemblance in texture to the vessels of a leaf. Observed with a power of 80. ●

March 2nd.—The cluster has undergone few changes. It has expanded much, however, by its advance on the disc of the Sun. Observed with 110.

March 3rd.—Two observations. Forenoon.—The largest spot in the cluster seems to have changed its relative place, and moved further north, (downwards in an astronomical telescope.) A spot or cluster of spots entering upon the disc of the Sun, is always much distorted,—and as, by the rotation of the Sun, in opening the cluster more to our view, this distortion decreases, it causes an apparent change in the relative position of the spots in the cluster. This change, arising from such a cause, would be in exactly or very nearly the opposite direction from that which is now manifest in the position of the cluster with regard to itself, and argues an actual displacement, either of the larger spot or of the remainder of the cluster.

It is a very remarkable fact, that in this cluster, as in others that I have observed, the shallows or penumbæ seem almost without any exception to be principally on that side of their respective spots, which is furthest from the centre of the cluster,—as if, in accordance with one of the many theories which have been entertained on this subject, an elastic gas or vapor issuing from the body of the Sun, should spread out, and by breaking through the stratum of superposed clouds in various places, should first form the spots, and afterwards the shallows in a divergent direction from the point of emission.

Fanciful as the idea may be, it strikes the mind of an observer actually viewing this appearance with great force, and it requires but feeble imaginative powers to refer all the varieties of umbræ and penumbæ to some central source. Power 180.

Afternoon.—The change in the position of the larger spot this morning, now seems to be almost as suddenly reversed. Had I not remarked it so particularly in the forenoon, I should believe that I had made an error in the drawing. A motion in one direction so immediately reversed seems highly improbable, and a more simple and natural explanation

would be, that some constant cause, as a wind, had shifted in one part of the cluster, before its effects began to be felt at the other, and the lagging portion of the cluster had afterwards gained its original relative position. Power used 110.

March 4th—The cluster has so suddenly and entirely lost its original form, that scarcely a trace of resemblance remains ; indeed, it is difficult to believe it identical with that observed yesterday. At the same time there is a manifest tendency in the cluster to lie in one direction ; a parallelism existing among the whole collection of umbrae and spots, like that produced in iron filings by the magnet, or in clouds by the action of the wind. Still further, the varieties of shade here are not confined to two, the deep black spot and the lighter umbra, but there is a wonderful diversity of depth of shade, varying by almost imperceptible gradations from the deepest black to the lightest imaginable tint. These three circumstances, all remarkable, and unusual in themselves, are still more so when combined in a single cluster, and at the same view, and urge the conclusion, that the cause of them all is a common one, and that the action of a single power has caused this simultaneous change. Should these appearances all vanish together, the supposition of a community of origin will be confirmed. All the phenomena that here present themselves,—this unusual uniformity of position and direction,—the obliteration and change of the cluster to a great extent,—and the diversity of tint both in the spots and surrounding umbrae, would be easily explained on the supposition that a sub-stratum or super-stratum of clouds or vapor, urged in one direction throughout by such a force as the wind, had swept over or under the cluster so as to modify its appearance, hiding, at intervals, portions of the opaque body of the Sun, as seen in the dark spots, producing the appearance of parallelism among the different spots and umbrae in the direction of the wind or other moving force, and causing, by the consequent intermingling and combina-

tion of the effects of different strata, an almost infinite variety of depth of shade.

In strong confirmation of this supposition it may be added, that all the change in any one of the spots has been to diminish it, to cut it up, as it were, into strips, parallel to each other, and to render the rest of it only an umbra surrounding what is still left of the original spot.

Had any spot enlarged by the change, the fact would tend against the opinion of a stratum of intervening clouds, for as we should see of course only what is left through their interstices, every change from such a source would be to diminish the spots, and render them exactly as I have just described their actual appearance. Powers used 110 and 180.

March 6th.—The cluster to-day, although much more expanded than before, may instantly be recognized as a whole, and in its component parts, as the one of March 3rd. All the distinguishing features of the cluster as noted yesterday, have passed away. There is no apparent parallelism in any one direction, no extraordinary differences of light and shade, and no change from the appearances of March 3rd greater than the ordinary changes of solar spots. That the spots, which, according to the generally received theory of Herschel, are openings in a luminous atmosphere or stratum of clouds spread over the Sun, should themselves one day undergo an entire change in form and intensity of shade, and the next return to their original appearance, is extremely improbable. It must, then, be highly probable, from this and the other facts enumerated, that a stratum of clouds or some other obstruction, lying in a single direction, and under the action of a wind, or some other force in that direction, was at the time of yesterday's observation interposed so as greatly to modify the appearance of the cluster.

There is to-day in the larger spot, an appearance of cleavage, as if it were about to separate and form several. This has occurred once or twice before, especially in one of the

smaller spots on the forenoon of the 3rd inst., and still more on the afternoon. It is extremely difficult to decide whether there is a complete division of the spot already or not; there is a perpetual flickering or dancing motion in these clefts, that renders it no easy task even to assign their location upon the spot. This is probably owing to the effect of strong contrast between the dark spot, and the narrow bridge of light over it; which causes unsteadiness of vision, commonly called swimming or dizziness of sight. I have tried the effect of looking at a similar spot drawn with India ink on white paper, and find it nearly the same.

The fact that was stated with regard to this cluster at its entrance upon the disc of the Sun, appears to be common to others,—that they are often preceded and followed at some distance by bright ridges, and this principally or entirely about the time of their entrance upon, or exit from the disc of the Sun. Observed with a power of 180.

March 7th.—The cluster has now passed the central point of its passage. It has hitherto expanded rapidly, but is now evidently upon the wane. This, however, as far as can be judged, is owing entirely to the rotation of the Sun. There is a singular appearance to-day in the large spot, and one, which, though in a less degree, has been noticed before in others. The outer side of the larger spot seems to radiate innumerable little arms, that give it a shaggy and bristling outline,—in short, it has a very “*noli me tangere*” appearance.

One little collection of small spots in the cluster, has assumed great regularity of shape, and is disposed in three parallel rows, of three in each row. This regularity is very surprising, and seems at first quite perfect, but a little close examination proves the contrary. All the spots upon the following side of the cluster are of a lighter shade and smaller than those upon the preceding side. They are not of a jet black, as are the others, but of a much lighter hue.

The appearance of the umbrae corresponds with that of the spots; those on the following side are uniformly of a lighter cast; and the line is so definite, that in two large spots, which extend into the region of lighter shade, the intense blackness of the Sun's dark body is immediately broken off, and changes in the same spots to a much lighter shade.—Does not this tend to confirm the conjecture of March 3rd, that in addition to the strata of clouds or luminous atmosphere in which spots are usually seen, there are passing clouds, or other obstruction, which are sometimes interposed so as to cut off a direct view of the dark body of the Sun, throughout a portion of the whole of a cluster?

There is now a cluster that is just entering upon the Sun's disc, that presents an unusual aspect; it consists of three spots, all just lying on the edge of the sun, and all as yet without umbrae; but the space between each two is much brighter than the general light of the Sun's disc, and is equal, if not superior in brightness to the ridges mentioned in other observations. The same power of 180 was used.

March 10th.—Owing to the cloudiness of the weather, no observations could be taken on the 8th and 9th; the cluster has in the interval undergone great changes, and is fast approaching the western limb of the Sun. Two of the principal spots, that have been separate hitherto, have united, and many have disappeared altogether.

One large spot, that has now advanced far on the Sun's eastern limb, appears to have quite a number of followers. Several smaller spots have sprung up at intervals behind the first, as it were, in its wake, for more than one third of the diameter of the Sun. In clusters, more than once, trains of spots have been noticed, extending for a considerable distance, and often, with one umbra common to all. The power used in observing was 110.

March 11th.—Two observations. Forenoon.—The spot has nearly reached the limb of the Sun, and is fast contract-

ing in its dimensions. To-day I made the experiment of fixing the eye upon a particular portion of the mottled surface of the Sun, and observing whether or no any changes take place during so short a period as the time of a single observation, but no change was apparent. It is exceedingly difficult to scrutinize any portion of the surface longer than the eye can remain fixed upon it, for when the eye is withdrawn, even a moment, for rest, the particular space under scrutiny is lost, and cannot again be recovered. The power used was 180.

Afternoon.—The cluster is just hanging on the limb of the Sun, and will soon disappear. But three dark spots can be distinctly seen within it. The powers used were 80 and 110.

March 13th.—The cluster has entirely left the Sun's western limb.

ARTICLE III.—See page 100.

Telescopic Observations on the Meteors of August, 1839. By E. P. Mason.

From Mr. S. C. Walker's article "On the Periodical Meteors of August and November," published in the *American Phil. Trans.*, 1841.

"The telescopic appearance of the meteors of the 9th and 10th of August (says Mr. Walker) has been carefully described by the late Mr. E. P. Mason. The opinion of that nice observer and zealous astronomer is contained in a manuscript not yet printed, and which is here offered to the public, in compliance with a request of the author made to me a few weeks before his decease."

The nights of the 9th and 10th of August are the evenings of the alleged recurrence of the August shower of me-

teors. They fell in extraordinary numbers, and of very uncommon brilliancy, during both nights. I have never seen or heard of any telescopic observations of these bodies, and therefore take this occasion to offer my own on these evenings, as the statement would be too brief for a separate article, and I shall probably have no better opportunity of making it. Although it has no relation to the subject of nebulæ, which I was then observing, (unless we suppose these bodies to be remnants of an original nebulous structure of our own system,) yet the subject of meteors is now attracting so much attention in Europe, as to render the early publication of this notice not unimportant.

During the four or five evenings in the vicinity of August 9th, between twenty and thirty meteors passed the field of view. About twenty of these occurred on the 9th and 10th, during which time I had the field almost constantly under my eye, until three or four o'clock in the morning. Their apparent brightness and velocity, as magnified by the whole power of the telescope, were, on an average, about the same, or rather less than that of those seen by the naked eye, (which latter class, to avoid repetition of the phrase, I will call *ordinary* meteors.) They were of a very sensible magnitude, greater than that of ordinary meteors of the same absolute brightness. On an average they were about one half or one third the diameter of Jupiter, and none were as large as that body. Their outline, however, was somewhat indefinite, like a star out of focus. In short, if such objects as the planetary nebulæ H. IV. 16 and 18, (which, and others of that class, had been observed a few evenings before,) could pass a field of view between 30° and 40° of *apparent* diameter in about $0^{\circ}.2$ or $0^{\circ}.3$, I conceive they would exhibit, in every respect, all that could be gathered from so few of these objects, during their brief interval of transit. One only of the number appeared star-like, and of the twelfth magnitude.

Their directions were so various, that any attempt to form a judgment of their general tendency was useless.

It is believed that these facts are not merely curious. We are enabled to gather from them the same information concerning the apparent remoteness of these *telescopic* meteors, that we already have of the relative distance of telescopic stars to those usually visible; for the chances are very great against the passage of a *single ordinary* meteor, during either night, across the minute space of sky actually occupied by the field of view. The appearance of so many of the telescopic kind within this space, proved them to be vastly more numerous: and they were proportionally fainter; both because they were invisible to the naked eye, and because the whole light of so large a telescope was unable to magnify them into an equality even with those seen by unassisted vision. Now in these two particulars—*great increase of number*, and *proportionate feebleness of individual light*—consists all our knowledge of what remoteness to assign to the telescopic fixed stars, and still further on, the crowded hosts of the milky way, upon the scale of distance of which the nearest fixed star is the unit. The testimony is even far stronger in the case of the telescopic meteors; for the proportionate minuteness of their actual unmagnified *velocity*, confirms, in the highest degree, what seems otherwise sufficiently evident, that we must allow them to have been many times further off than those of ordinary occurrence. Why may we not *gage* the strata of meteors or meteoric matter, at the time of an expected shower, with that kind and degree of certainty, which attends Sir William Herschel's gages of our sidereal system and milky way?

Unless there is reason for a great difference between the absolute velocities of the more distant and the nearer of these bodies, the telescopic meteors which were seen on the above evenings, could not have been much less than eighty times as far above the earth as those seen by the naked eye, which (according to the observations of Brandés and Benzenberg)

probably darted most thickly at a height of fifty or sixty miles. This latter quantity multiplied by eighty, or the magnifying power of the telescope, indicates a probable elevation of at least four thousand miles. At this vast height, if the atmosphere exists at all, it must be in a state inconceivably rare, rivalling the supposed resisting medium in tenuity. It will at once be seen, that telescopic observations of the nature of those made with the fourteen feet reflector, have a peculiar bearing on the cause of the ignition of meteors, and perhaps on inquiries connected with the extent of the earth's atmosphere, and with the resisting medium. If carried out with energy, many of the misty theories concerning the nature and constitution of meteors, will probably melt away, and we may have at least the comfort of compelling speculation to the effort of re-invention. A nebulous or gaseous constitution seems to be indicated by the observations, as far as they have a bearing on this point. I have seen (I believe in the London Times) a communication from Sir James South, the celebrated English astronomer, in which, after expressing great gratification at the recurrence of the annual shower on this same occasion, he remarks that he endeavored to bring a hand telescope to bear upon the brightest of these objects, as they successively flashed, but without success, although a tolerably quick shot in this kind of observation. This is the only attempt at telescopic examination of which I am aware.

ARTICLE IV.

An account of Mason's Paper on the Nebulæ, published in the American Philosophical Transactions, 1840.

In the introductory paragraph, the author explains the general object of his paper in the following terms :

“Although a period of nearly fifty years has now elapsed, since the researches of the elder Herschel exposed to us the wide distribution of nebulous matter through the universe, we are still almost as ignorant as ever of its nature and intention. The same lapse of time that, among his extensive lists of double stars, has revealed to us the revolution of sun around sun, and given us a partial insight into the internal economy of those remote sidereal systems, has been apparently insufficient to discover any changes of a definite character in the nebulae, and thereby to inform us at all of their past history, the form of their original creation, or their future destiny. At the same time, the detection of such changes is in the highest degree desirable, since no other sources of evidence can be safely relied upon in these inquiries. That the efforts of astronomers have thus far ended, at best, in vague and contradictory conjectures, is principally attributable to the great difficulty of originally observing, and of describing to future observers, bodies so shapeless and indeterminate in their forms, with the requisite precision. For, we cannot doubt, authorized as we are to extend the laws of gravitation far into the recesses of space, that these masses of diffused matter are actually undergoing vast revolutions in form and constitution. The main object of this paper is to inquire how far that minute accuracy which has achieved such signal discoveries in the allied department of the double stars, may be introduced into the observation of nebulae, by modes of examination and description more peculiarly adapted to this end than such as can be employed in general reviews of the heavens.

“Our method consists not in an extensive review, but in confining the attention to a few individuals; upon these exercising a long and minute scrutiny, during a succession of evenings; rendering even the slightest particulars of each nebula as precise as repeated observation and comparison, with varied precautions, can make them; confirming each more doubtful and less legible of its features by a repetition of *suspensions*, which are of weight in proportion as they accumulate; and, lastly, when practicable, correcting by comparison of judgments of different persons at the same time.

“Thus much for *observation*—for rendering the idea of the object as perfect as may be in the mind of the observer. For the

more unimpaired *communication* of this idea or perception, the theory of the process adopted is briefly, first, to form an accurate chart of all the stars capable of micrometrical *measurement* in and around the nebula; secondly, from these, as the greater landmarks, to fill in with all the lesser stars, down to the minimum visible by *estimation*, which, with care, need not fall far short of ordinary measurement; thirdly, on this as a foundation, to lay down the nebula. The process, also, includes the adoption of a method of representing nebulae, intended to remove the formidable and acknowledged difficulties just named, and at the same time to introduce a numerical precision in the manner of expressing on paper their various features; thereby transmitting the best impressions of observation with almost unimpaired fidelity, and entailing only the necessary defects of original vision."

The method here mentioned by the author of delineating the observations, is more particularly described in a subsequent paragraph of the article. It was one of Mason's ingenious and happy devices for giving unexampled finish and accuracy to astronomical drawings. In researches on such faint and anomalous objects as nebulae, skill in drawing is no less important than skill in observing; otherwise, it is both impossible for the observer to convey to others a just notion of what he sees, and no accurate comparisons can be instituted between observations made at different and distant intervals, for the purpose of ascertaining whether any, and what changes occur among these mysterious bodies. Hence the remarkable acuteness of vision and delicacy of hand which Mason possessed, were most happily employed in giving the highest degree of finish and precision to the drawings which accompany the article under review,—drawings which Mr. Walker pronounces superior to any of the kind extant. The method itself consists in first laying down a groundwork of *lines of equal brightness*; that is, running a curve through all parts of the object where the brightness is one and the same, (like *isothermal* lines, to denote equality of temperature,) and then to indicate degrees of brightness by the

spaces between the contiguous curves. By these means the most delicate gradations of light and shade are exhibited with numerical precision. The author proceeds :

"The observations presented in the following paper, are a portion of a series undertaken in the summer of 1839. The telescope employed was of the Herschelian construction, with an aperture of twelve inches, and a focal length of fourteen feet. Although much inferior in size and light to some of the gigantic reflectors of the Herschels, it is yet entitled to some distinction as the largest telescope on this side of the Atlantic.* The instrument was first planned and begun in the summer of 1838, by my friend and classmate, Mr. H. L. Smith. A tolerably good metal was cast after several failures, and the speculum was finally polished near the close of the summer. Mr. Smith and Mr. Bradley shared the expenses attending the formation of the mirror and the erection of the telescope, and divided between them the long labor of grinding the speculum, and I united with them in the less tedious task of giving the mirror its final polish and figure. An account of its performance in some of our first rough trials of its figure, is furnished in a note on the 174th page of the xxxvth volume of *Silliman's Journal*. It has since been frequently and perseveringly repolished by Messrs. Smith and Bradley ; but the test objects mentioned in that note, have been about the limit of its separating power.

"It was our intention at first to avail ourselves of the power and light of this instrument, in a meridional review of a portion of the double stars of the younger Herschel's catalogue. But a short experience convinced us that its large surface was much better adapted to observations on the fainter nebulae, than its power of separation to the examination of close double stars. An imperfection in the casting,† in spite of the most patient endeavors in renewed and frequent polishing, seemed to vitiate a portion of

* Few of the English artists are willing to undertake the construction of a reflector of more than nine inches aperture.—O.

† It is exceedingly difficult to obtain a good casting of so large a speculum. The metal in itself, is of a composition that presents obstacles of no ordinary difficulty, while, from the comparative ignorance and unskilfulness of many of our workmen in this department, those facilities are not afforded for over-

the speculum near it; although it did not prevent a very perfect definition of the disks of large stars, it was yet apt to throw around them flitting rays and burrs of light, sometimes hiding very close or faint companions. By a skilful application of diaphragms, these might be so far annihilated as to afford a good separation of such stars as α Coronæ, ζ Orionis, μ^2 Bootis, γ Virginis, λ Ophiuci, and others less than $1''$ in the distance; but the loss of light by this mode of proceeding was a serious inconvenience. On objects as ill-defined as nebulæ, however, the full light of the telescope could be employed to the greatest advantage. It was not long before a strict scrutiny revealed to us many particulars concerning the nebulæ of the elder and younger Herschels, which it was obvious they had not noticed, and in some instances spaces of nebulous matter of great extent, connected with well-known nebulæ, but altogether overlooked by former observers. These considerations decided the application of the instrumental power we had obtained, to this interesting field of inquiry.

“The nebulæ which are the subjects of the present paper are 1991, 2008, 2092 and 2093 of Sir J. F. W. Herschel’s large catalogue. (Phil. Trans., 1833.) There are in reality but three, since 2092 and 2093, as will be shown in this paper, are but parts of one very extensive nebula, united by a long irregular band of very faint nebulous matter. These three nebulæ are among the most interesting objects in the heavens; perhaps, with the exception of nebula Orionis, and nebula Andromedæ, the most so. The number of objects examined is small, in order that the utmost accuracy in the delineation of the peculiar features and minutæ of these nebulæ, attainable by protracted scrutiny, might be arrived at. This must still be limited by the unavoidable errors of judgment and the power of the telescope. It is hoped, however, that by this means something has been done to supply, in the examination of these nebulæ, the place of measurement in that of double stars, and to put in our possession data by which future changes, if there

coming these obstacles, which scientific interest in Great Britain and the older countries of Europe has conferred. For a telescope considerably less in size, I have had more than fifty specula cast before I could obtain one free from imperfections, and susceptible of a very excellent figure. In the present case, the general figure of the speculum, except in the neighborhood of the flaw I have spoken of, seemed to be excellent.

be any, can be recognised and detected in at least a few of these wonderful sidereal systems.

"During the fall of 1839, I was enabled to avail myself of an excellent micrometer, (adapted to Clark's ten foot achromatic of Yale College,) for taking repeated measures in right ascension and declination of so many stars in each nebula as would serve to determine, within a very small quantity, the places of those which were utterly too faint for any measurement. An abstract of these measures is contained in this paper. By these means the places of all the stars were brought to such a degree of exactness, that it was thought expedient to throw them into the form of catalogues, especially as a direct reference could thus be made to any particular star, and through it to any portion of each nebula, without the necessity of encumbering the map with multitudes of letters or numbers."

After this general statement, the writer proceeds to give the details of his observations, for which we must refer to the paper itself in the American Philosophical Transactions. An examination of them will convince any one conversant with these subjects, that none but one who combined all the qualities requisite for an astronomer of the first class, could have either made the observations, or have delineated them with such consummate skill. We will only add, that the author never enjoyed the satisfaction of seeing his article in print, having died while it was in the progress of publication.

FINIS.

